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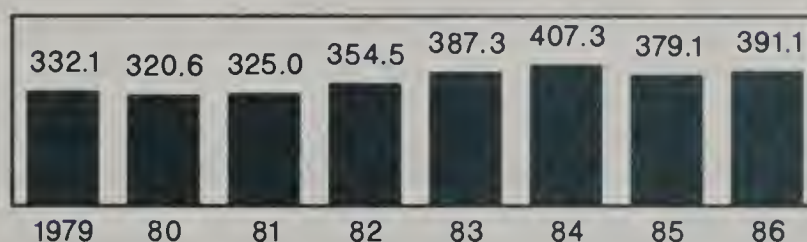
Situation and Outlook Report

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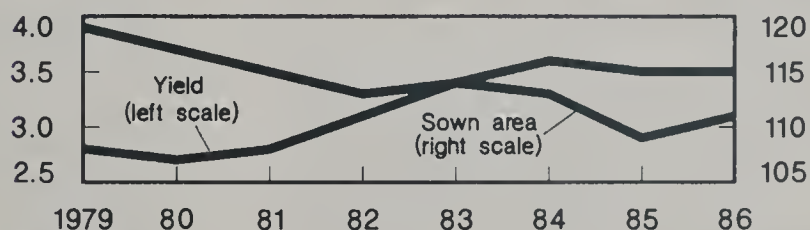
Grain Production and Yields Rise Despite Decline in Area

Production (million tons)



1,000 kg/ha

Million ha



1986 estimated.

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SUMMARY

China's agricultural trade surplus is expected to decline substantially in 1987. Export value is likely to decline, while 1987's import value will be greater than in 1986. In 1986, the agricultural trade surplus expanded by 6.3 percent. Exports of farm products increased by only 9.4 percent, compared with an 18-percent increase in the previous year. Faced with rising domestic demand, favorable domestic prices for some commodities, and some improvement in the overall trade deficit, China's planners could cut export supplies. Less corn, sorghum, soybeans, and cotton will likely be exported in 1987.

U.S. agricultural exports to China dropped to \$57 million in calendar 1986, down 63 percent from the previous year. The drop comes on the heels of a 74-percent decrease in 1985 and is the lowest level since 1977. The primary reasons were an \$18-million decline in cattle hide shipments and \$100 million in lower wheat sales. There should be a sharp improvement in U.S. agricultural exports to China in 1987. China began buying U.S. corn early in the year, and this spring purchased 1 million tons of wheat under the Export Enhancement Program-- the first wheat sale since 1985. The current forecast for fiscal 1986/87 exports to China is around \$230 million, well above the \$88 million of 1985/86.

China's total grain output in 1987 is forecast at 401 million tons, 10 million above the 1986 crop but still 6 million below the 1984 record. The Chinese Government continued emphasizing agricultural production this year by raising procurement prices for rice, corn, and cash crops such as peanuts, cotton, sugarcane, and tobacco. The Government also resumed bonus programs to provide cash advances and subsidies for inputs such as fertilizer and diesel oil. In addition, central and local governments expanded agricultural investment. Good harvests of winter wheat and rapeseed are expected, as well as larger spring wheat, rice, and corn crops. Production of all oilseed crops, except sunflowerseed, is expected to increase. Cotton output could rise sharply this year.

Grain output in 1986 increased 12 million tons over the previous year, reaching 391 million tons. Wheat production was a record

90.3 million tons. Rice and coarse grains rose 1.5 and 5.2 percent to 171.1 million and 86.6 million tons, respectively. Area expansion was important to the rise in grain crops in 1986.

Cotton acreage dropped drastically again in 1986 and output fell to 3.54 million tons, far below the annual production target of 4.25 million set in the Seventh Five-Year Plan. Production of total oilseed crops also declined last year. Lower average yields in 1986, about 1.5 percent, were responsible for more than half the reduction. Soybean output in 1986 reached 11.55 million tons, surpassing the previous record of 11.3 million in 1936.

Output of livestock products in 1986 grew continuously, but at a slower pace. Total red meat production increased to 19.18 million tons, about 9 percent over the previous year, but slower than the 14-percent increase registered in 1985. Egg output increased only 7 percent in 1986, compared with nearly 23-percent growth a year earlier. Production of cow's milk maintained the 14-percent growth rate of 1985, reaching 2.86 million tons in 1986. However, with the exception of milk output, livestock production, particularly pork, will grow more slowly in 1987. Meat output will be sluggish because of a shortage of feedgrains.

From 1952 to 1978, expenditures for Chinese consumers rose slowly, but increased sharply from 1978 through 1985 during the period of economic reforms. As incomes have risen, both urban and rural consumers have spent a decreasing portion of their budgets on food and increased the portion spent on clothes, rent, cultural, and educational goods and services. Urban living standards are still much higher than rural. The gap between the two narrowed during the reform period. Recent surveys found that while rural consumers have purchased an increasing amount of goods in markets, still 40 percent of all goods consumed in 1985 were provided by farmers themselves.

China's food processing industry expanded significantly during the Sixth Five-Year Plan period (1981-85), as income rose rapidly in both rural and urban areas and agricultural production increased sharply. The Chinese

Government expects the industry to continue its rapid growth through the end of this decade. However, the lack of experience in production, marketing, and planning, and the urgent need for advanced technology in processing and packing, will give western

countries, including the United States, sales opportunities to the country's food processing industry. China will also vigorously develop quality output from the industry to compete in international markets, in order to earn foreign exchange.

MACROECONOMY

The economy recorded slower but more normal growth in 1986, after 2 consecutive years of rapid growth. Inflation fell slightly and increases in real incomes also slowed. The foreign trade deficit persisted, although it decreased because of tight control on imports, particularly consumer goods and agricultural commodities.

Slower but Steady Economic Growth

The economy grew at a slower pace in 1986, as real Gross Domestic Product (GDP) increased by 7.8 percent, compared with 12-percent growth in the previous 2 years. Gross industrial output advanced 11.1 percent over 1985. Of the total industrial output, value of state-owned industry increased by 6.2 percent, collectively-owned industry grew by 16.7 percent, and individually-run industry went up by 60.6 percent.

The value of total agricultural output increased by 3.5 percent, surpassing the 3-percent target for 1986. The total production of rural society (the sum of the total output value of agriculture and the total output value of industry, construction, transportation, and commerce run by collectives and individuals in rural areas) rose 11.6 percent from 1985. The value of rural industry, construction, transportation, and commerce grew by 22.3 percent.

Despite small growth in coal production, the energy sector increased production of crude oil and electricity by 4.6 and 8.5 percent, respectively, over 1985. Two other sectors of the economy—transportation and services—also grew steadily.

The slower economic growth, and stricter government control of price changes in 1986, alleviated the previous year's large jump in retail prices. Last year saw the overall retail price increase dipping to 6 percent, 68 percent below 1985's rate. The retail price index in

the cities rose an average of 7 percent, and 5 percent in rural areas. The price of food rose 7.4 percent, following a 14.4-percent increase in 1985. Among food price increases, the price of meat, poultry, and eggs went up 10.1 percent, prices of aquatic products grew 11.7 percent, and fruit advanced 10.5 percent. Although inflation was down in 1986, this year's inflation should stay about the same as last year's. China's leaders will have to accept higher inflation in coming years, particularly since many prices are now determined by market supply and demand.

Real income increased in 1986 despite steady increases in the cost of living. According to sample surveys, nominal income of urban families rose by 20.9 percent last year. Allowing for the rise in the cost of living, real income of urban residents rose by 13 percent. Farmers' per capita annual net income also grew 6.7 percent from 1985. Real income of the peasants, however, rose by only 3.2 percent. Relatively small increases in grain crops and declines in some cash crops limited rural gains.

Foreign Trade Deficit Improved Slightly

Foreign trade expanded steadily in 1986 to \$73.8 billion, up 6.1 percent from the previous year. The rapid expansion of imports in 1985, about 60 percent over the previous year, was followed by a 16.6-percent increase, to \$42.9 billion, in 1986. This, together with 13.1-percent growth in exports, left China with a \$12-billion trade deficit in 1986, 22 percent less than the preceding year. China's economic policy restricted imports of consumer goods and lowered agricultural commodity purchases. The policy limited imports mostly to sophisticated machinery and technology, in order to revitalize and upgrade existing enterprises to produce export-quality goods.

China moved aggressively in 1986 to increase the range of its exports. Textiles, in particular, responded well and became the

leading export item in value terms. In 1987, the foreign trade deficit at the end of the first quarter was reportedly only \$1.05 billion. It was more than \$3 billion for the same period in 1986. The drop was brought about by a record high export value that topped \$7.28 billion, a significant jump over the roughly \$5 billion of a year ago. Of the total export value, textile products accounted for 44.6 percent, reaching \$3.25 billion, a rise of 39.5 percent over the same period last year.

China's foreign exchange reserves continued to decline, and at the end of 1986 totaled \$10.5 billion, about 12 percent below the previous year. However, reserves increased to \$10.8 billion in the first 3 months of this year, the first rise since 1984. The improvement was attributed to increased trade volume and foreign investment, more contracts on overseas projects and labor cooperation, and faster development of the tourist industry.

The 1986 U.S.-China bilateral trade picture was not as positive as in 1985. Overall trade was up slightly, while U.S. exports were down and China's exports up. The trade deficit has shifted dramatically in China's favor in the last 3 years, possibly reaching \$2 billion at the end of 1986. U.S. farmers were not able to profit from the fall in the dollar, and U.S. exports actually declined. China's own July devaluation appeared to have offset the earlier U.S. devaluation. [Francis C. Tuan (202) 786-1616]

AGRICULTURAL TRADE

China's agricultural trade surplus expanded by 6.3 percent in 1986. Exports of farm products increased by only 9.4 percent, compared with imports which increased by 18 percent. Imports from the United States fell from \$157 million in calendar 1985 to \$57 million in 1986. The United States was again a net importer of farm products from China in 1986.

Small Gain in Agricultural Trade Surplus

The concerted effort to expand exports in 1985 carried over into 1986 as exports grew 9.4 percent to \$6.1 billion. Export tonnages grew at an even faster pace, but falling world prices limited value gains.

Grain exports in calendar 1986 expanded by 2.8 million tons, a 43-percent increase, but lower world market prices netted China only an 11.7-percent increase in value from 1985. Fruit exports expanded 30 percent while canned food exports increased 14 percent. Raw cotton and cotton yarn shipments increased by 62 percent and 48 percent respectively. Exports of oilseeds rose by 24 percent. Traditional major export categories such as animals and animal products showed little growth, and shipment of some categories of goods declined.

The 1985 slowdown in domestic crop production boosted China's agricultural imports in 1986 to \$2.7 billion, up 18 percent. This is the first year-over-year increase since 1980. The value of sugar, logs, and animal fats was down in 1986. Corn imports declined substantially, but the increase for wheat, barley, dried beans, and soybeans increased the grain total by over 26 percent. Wool imports increased by 67 percent, and the value of edible oil increased by 243 percent.

In 1987 China's agricultural trade surplus could well decline substantially. Export value will drop. Rising domestic demand and favorable domestic prices for some commodities could cut into export supplies. Less corn, sorghum, and soybeans likely will be exported in 1987, and prices will be down. Rice exports could be about the same as last year, although prices will also likely be lower. Cotton exports likely will go down because of the requirements for domestic consumption and the need to rebuild depleted stocks. Fruit and canned goods exports could rise in 1987. China's planners would like export volumes to grow more rapidly, but domestic demand and international competition will constrain exports.

The value of imports in 1987 will be greater than in 1986. Wheat, barley, and corn imports will be much larger than in 1986, but prices likely will be lower than last year. Soybean imports likely will continue at the same level. The volume and value of other imports will also increase.

Sharp Drop in U.S. Exports

U.S. agricultural exports to China dropped 63 percent in calendar 1986 to \$57 million, the lowest since 1977 (table 23). The drop comes

on the heels of a 74-percent decrease in 1985. The primary reasons were an \$18-million decline in cattle hide shipments and a \$100-million drop in wheat sales. Increases of \$4 million in corn and \$13 million in soybean sales were only partially offsetting.

U.S. imports from China increased by only 1.5 percent to \$200 million in 1986 (table 24). The U.S.-China trade deficit increased from \$40 million in 1985 to \$143 million in 1986. Some of the decline was caused by overall increases in China's domestic production, but a large part was due to reduced U.S. competitiveness during much of the year.

There should be a sharp improvement in U.S. agricultural exports to China in 1987. China began buying U.S. corn early in the year, and the first wheat sale since 1985 was concluded in spring 1987 for 1 million tons. The current USDA forecast for fiscal 1986/87 is \$231 million, well above the \$88 million of 1985/86. The value of non-grain commodities will likely not change drastically in calendar 1987 or fiscal 1986/87. [Frederick W. Crook (202) 786-1616]

Table 1--Foreign trade indicators

	1984	1985	1986
Million dollars			
Exports			
Total	25,024	27,559	31,337
Agri.	4,512	5,472	6,099
Imports			
Total	26,744	42,832	43,403
Agri.	2,856	2,308	2,734
Balance			
Total	(1720)	(15,273)	(12,066)
Agri.	1,656	3,164	3,365
Foreign exchange reserves	16,705	11,913	10,500
Yuan per dollar			
Exchange rate, average	2.3200	2.9367	3.4528

() Indicates negative number.

All trade data are on an f.o.b. calendar year basis.

Sources: General Administration of Customs, *China's Customs Statistics*, various issues; International Monetary Fund, *International Financial Statistics*, June, 1987, pp. 160-161.

AGRICULTURAL POLICIES AND PLANS

Despite a 12-million-ton increase in total grain output last year, grain production in 1986 was still 16 million tons below the 1984 record. The increase in output did not meet the high expectations of China's leaders, particularly since they had gotten used to bigger annual increases, ranging from 20 to more than 30 million tons during 1982-84. In 1986, in contrast with 1985, there were no major production policy initiatives announced.

The two main policy themes last year were holding the line on increasing retail prices of farm products and reversing the decline in grain area. Retail prices for food grains were tightly controlled by the Government, but feedgrain prices skyrocketed because of strong and growing demand. A small increase in the purchase price of wheat, and a significant increase in the purchase price of soybeans, resulted in expanded areas sown to these crops. The area expansion was a major reason for the increased grain output.

Two consecutive years of below-par production of grains caused reform leaders to worry about the validity of their policies. Anti-reformers criticized reform leaders for failing to produce more grains. Therefore, grain production in 1987 will be critical in keeping programs going for the next few years. In order to achieve better results in 1987, the Government raised grain purchasing prices, increased central and local government investment in agriculture, and encouraged multiple cropping through increasing supplies of agricultural inputs, such as fertilizers and diesel oil.

More Policy Adjustments in 1987

After 2 consecutive years of below-record grain production in 1985 and 1986, China's leaders began to realize that fast growth in grain output is over, and that even slow growth in coming years will be difficult to accomplish. The 1987 agricultural production plans call for a moderate increase of 4 percent in the value of agricultural production, similar to the rates of the last couple of years and significantly lower than those of the early 1980's. Other specific production goals include a grain output of 400 to 405 million tons and a cotton crop of 4.25 to 4.5 million tons. Economic planners also

call for increases in oilseed crops, sugar, and other cash crops. Major state procurement price changes have been announced to encourage larger production in 1987. The changes include:

- o Corn procurement prices rose from 0.2640 yuan per kilogram in 1986 to 0.2840 yuan in 1987. A total of 14 major corn-producing provinces will benefit from the increase, including Heilongjiang, Jilin, Liaoning, Nei Mongol, Hebei, Shanxi, Beijing, Tianjin, Shaanxi, Gansu, Ningxia, Xinjiang, Shandong, and Henan. Prices in individual provinces may vary slightly from the ones given above.
- o The procurement price of Indica rice will increase by 3 yuan per 100 kilograms in ten provinces and cities of Shanghai, Jiangsu, Zhejiang, Anhui, Sichuan, Jiangxi, Henan, Hubei, Hunan, and Shaanxi. The price for Japonica rice was set on April 1 to increase 3.5 yuan per 100 kilograms in Shanghai, Jiangsu, Zhejiang, Anhui, Jiangxi, Shandong, Henan, Hubei, Hunan, Ningxia, and Xinjiang. All procurement prices for rice tend to vary by province so the increases may be slightly different.
- o Ginned cotton procurement prices will increase from 3.58 yuan per kilogram in 1986 to 3.67 yuan in 1987 for areas north of the Huai River, and from 3.4 yuan to 3.67 yuan for areas south of the Huai River. The 1987 procurement prices, both north and south, are calculated 30 percent at the base price and 70 percent at the bonus price.
- o The increases in the cottonseed price will vary by province, ranging from 40 to 100 percent of the bonus price. Prices in Shandong province, the largest cotton producer, would increase about 37 percent, from 0.252 yuan per kilogram in 1986 to 0.345 yuan in 1987.
- o The procurement price of medium shelled peanuts has been raised from 1.259 yuan per kilogram in 1986 to 1.44–1.5 yuan, effective April 1, 1987. Reportedly, peanut oil purchasing prices will also be increased proportionately.

- o Sugarcane procurement prices will be increased in major producing provinces to promote higher production, and the procurement of sugar beets in the northeastern provinces will be raised about 10 percent.

- o For the second year in a row, the price for top grades of flue-cured tobacco will be increased, while prices for the lowest grades will be reduced. The top grade flue-cured tobacco price has been raised from 4.4 yuan per kilogram in 1986 to 5.6 yuan this year. For the low grade, the price will be reduced from 0.02 yuan per kilogram in 1986 to 0.01 yuan in 1987.

Despite the availability of information on procurement prices, actual area shifts among crops are difficult to estimate. For example, comparison of corn and cotton price ratios suggests that corn planting will be expanded in the north and cotton planting in the south. The price ratio between shelled peanuts and cotton indicates that farmers would benefit by planting more peanuts this year. However, because of the lack of information about production costs, one cannot calculate actual changes in profit margins. Therefore, it is not possible to describe area shifts at this early date.

Farmers' incentives have been increased not only by the higher procurement prices, but also by the resumed bonus system that allows farm households to buy quality fertilizer and diesel oil at government-fixed prices. Early announcements by the Government this year indicated that every 100 kilograms of grain delivered to the Government will be granted bonus coupons that will permit farmers to buy 12 to 20 kilograms of fertilizer and 6 kilograms of diesel oil, and every 100 kilograms of ginned cotton will allow farmers to buy 60 to 70 kilograms of fertilizer. The demand for inputs, therefore, is expected to increase by a large margin this year.

In addition the Government is scheduled to step up its agricultural investment to 2.37 billion yuan in 1987, an increase of about 40 percent over the previous year. The funds will go mainly to irrigation works, localities that are major commercial grain production bases, and important reclamation projects.

Overall, the Government has better adjusted and prepared its agricultural production plans this year, particularly compared with the previous year. These adjustments are expected to help China's agricultural production reach its 1987 targets.

Programs Considered For the Next 10 Years

There are two major goals set by the State Council for China's agricultural production in the next 10 years: to guarantee each person an average grain availability of 400 kilograms a year, and to steadily increase farmers' per capita income to approach that of urban residents. To achieve these goals, the State Council has adopted eight programs to be implemented by five agriculture-related departments, including the Rural Policy Research Office of the Communist Party; Ministry of Agriculture, Animal Husbandry, and Fisheries; Ministry of Forestry; Ministry of Electricity and Water Conservancy; and the Research Center for Rural Development of the State Council. The programs are briefly described as follows:

- (1) Policies to adjust and stabilize prices. The Government will guarantee profit for agricultural producers in order to encourage farmers' investment. During the Seventh Five-Year Economic Plan period (1986-90), China will try to complete reforms of the purchasing and marketing systems for such agricultural commodities as food grains, cotton, oilseed crops, and pork. There are also plans to set up market intervention funds and reserve funds to reduce price fluctuations for major agricultural products.
- (2) Programs to accelerate adoption of new agricultural technology and techniques. Reportedly, 10 program areas are to be integrated into the country's scientific and research plans. The areas include: (a) new varieties of grain, cotton, oilseeds, and new livestock breeds; (b) improved cultivation techniques for special crops; (c) use of PVC plastic sheets and other chemical materials; (d) improvement of compound fertilizer application; (e) water conservancy and irrigation techniques; (f) comprehensive disease control and protection techniques for plants and animals; (g) improvement of compound feed feeding; (h) management and processing techniques for fast-growing timber; (i) advanced cultivation techniques for sea- and fresh-water products; and (j) new technology in storage, processing, and transporting of perishable products. Investment should also be directed to bioengineering.
- (3) Projects to improve more than 6.7 million hectares of farmland. The Government estimated an average loss of about 500,000 hectares of cultivated area a year during the Sixth Five-Year Economic Plan period (1981-85). Chinese plans call for the annual loss of farmland to be less than 330,000 hectares for the next 10 years. The Government plans to improve crop yield for 3.3 million hectares of low-yield fields, increase irrigated area by 2.7 million hectares, and build drainage systems for 2 million hectares.
- (4) Programs to encourage large scale farming and management. In some developed areas, a few modern and commercialized family farms will be set up, on a trial basis, to demonstrate the importance of economies of scale and increased land productivity. In other areas, emphasis will be on integrating household production, marketing, and services.
- (5) Projects to move 100 million laborers from raising crops to rural industry and service enterprises. Projections made by government researchers show that, by 1995, rural areas will have 200 million surplus laborers. A recent development that has absorbed a great deal of surplus labor is fast-growing village and township enterprises. The Government, if necessary, will guarantee them a supply of raw material and inputs.
- (6) Programs to improve rural technical assistance and services. The proposal is to train 200,000 agricultural technicians and extension agents within the next 5 years to improve the rural technical assistance and service network.
- (7) Plans to increase industrial output for agricultural use. The targets include a plan to build 10 large fertilizer

manufacturing plants in the next 10 years, and plans to develop feed additives, plastic products, and agricultural chemicals such as herbicides and insecticides.

- (8) Measures to help poor areas and solve poverty. The programs will improve three areas: transportation, trading, and electrification. Drinking water will also be provided to poor areas during the next 10 years. [*Francis C. Tuan (202) 786-1616*]

THE RURAL ECONOMY

China's economy expanded by over 9 percent in 1986. The value of output in rural areas rose over 11 percent, but strictly defined agricultural output increased only 3.5 percent. Output of rural enterprises expanded by 21 percent, and these enterprises now employ over 76 million workers, about 20 percent of the rural labor force. Urban per capita incomes increased by about 21 percent to 828 yuan, while rural net per capita incomes inched up to 424 yuan, a 6.7-percent increase. The Government has responded to growing disparities in income by initiating many programs, including direct aid, public work projects, loans, and tax breaks to aid the poor.

The gross value of output, which includes the output value of agriculture, industry, construction, transport, postal, telecommunications, commerce, and catering trades for 1986, reached 1,877.4 billion yuan, up 9.1 percent over 1985. Major problems in the general economy in 1986 were a too-rapid expansion of fixed-asset investment; a supply of consumer goods which did not match demand; government expenditures, which exceeded receipts; and the value of imports, which exceeded foreign exchange earnings. Additional problems include a growing population, need for price reform, and reform of enterprise management.

The gross value of rural society, which includes the output value of agriculture, industry, construction, transport, and commerce run by collectives and individuals in rural areas, rose to 742.9 billion yuan in 1986, an increase of 11.6 percent over 1985. In 1986 the value of non-agricultural output rose by 22.3 percent, and the proportion of this value

to total value of rural society increased from 42.9 percent in 1985 to 46.9 percent in 1986.

In 1986 the gross value of agricultural output, which includes the output value of crops, forestry, animal husbandry, fisheries, and sidelines production, amounted to 394.7 billion yuan, up 3.5 percent from 1985. Moreover, as in previous years, the output value of the non-crop subsectors advanced more rapidly than did crops. The value of crops as a percentage of the total declined from 63 percent in 1985 to 62.4 percent in 1986.

Output from rural enterprises increased to an estimated 330 billion yuan in 1986, 21 percent over 1985. The number of enterprises exceeded 12 million and the number of workers increased to 76 million, about 20 percent of the rural labor force. These enterprises can be categorized as primary; agricultural, secondary; industry, construction, and mining and tertiary.

China's statisticians divide tertiary enterprises into four parts: 1) transport, telecommunication, commerce and catering, storing, supply and marketing, and other circulation sections; 2) finance, insurance, geological surveys, real estate, public services, neighborhood committee work, tourism, consultancies, information services, technical services, and other services connected with the quality of life; 3) education, health, sports, and social welfare; 4) government and party organs, public organization, the army, and the police. The output from the last category is not counted in tertiary output.

Both urban and rural average annual incomes rose in 1986. Sample surveys of urban families showed average annual per capita expenditures in 1986 were 828 yuan, an increase of 20.9 percent. Sample surveys of rural households indicate per capita annual net income for 1986 rose to 424 yuan, an increase of 6.7 percent.

Workers received large year-end bonuses in 1986 which boosted their annual earnings. Rising prices, however, reduced the rise in their real income to 13 percent. Inflation limited the real rise in rural incomes to 3.2 percent.

Table 2-- Per capita income, 1978-86

Year	Average annual per capita net income for agricultural households	Average annual per capita expenses for urban dwellers
1978	133.57	NA
1979	NA	NA
1980	191.33	NA
1981	773.44	420.36
1982	270.11	432.12
1983	309.77	464.04
1984	355.33	514.32
1985	397.60	675.48
1986	424.00	828.00

NA = Not available

Source: China Stat Yearbook, 1986 p. 668, 673. and SSB 1986 Communiqué.

Government and party leaders concerned about growing disparities in income (see special article) have begun programs to aid poorer regions of the country. The Government initiated public works projects to build roads and bridges in poor counties, and in 1984 the state allocated 5 million tons of grain and 10,000 tons of cotton to pay peasants to build roads and docks. In 1985 1.1 billion yuan was allocated to this work. About half this sum was given to peasants in the form of grain and cotton cloth as partial payment for labor. In 1986 the state allocated 5 billion yuan to road and drinking-water projects.

Government-controlled banks also have been issuing loans to poor areas, to build industrial enterprises and improve farmland so output and incomes can rise. Local governments allocate direct aid to the most disadvantaged, and they provide funds and technical assistance to support new enterprises which will benefit the poor. Additionally, local governments aid low-income farmers by finding jobs for them in rural industries. Tax burdens are reduced or exempted for poor areas. A plan is being drafted to improve conditions in about 200 poverty-stricken counties where peasants' annual per capita income is below 200 yuan. The draft plan is to be presented in 1988 and will cover the period from 1988 to the year 2000. [Frederick W. Crook (202) 786-1616]

INPUTS

Land Resources Diminished

Land resources have diminished since reforms were instituted in 1978. Cultivated area fell from a peak of 100 million hectares

in 1982 to an estimated 96.1 million in 1987, a decrease of 3.9 percent. Some high-cost low-yield terraced land was not cultivated for economic reasons. But the major losses occurred because of construction and urban expansion. In the 1978-87 period many factories, roads, and housing projects were built on suburban fields. The large increase in rural housing construction also reduced cultivated area. Government and private-sponsored land reclamation projects continued at a slow pace in these years, and reclamation gains probably did not offset the losses from urban expansion and rural housing construction.

China's officials are completing a survey of agricultural resources, and preliminary reports suggest that the amount of cultivated land is much higher than that currently being reported in statistical schedules and published in statistical yearbooks. These findings, however, do not contradict the fact that from 1978 to 1987 China lost valuable land resources.

Sown area also slipped from a high of 150 million hectares in 1978 to an estimated low of 144 million in 1986, a decline of 4 percent. Intensity of land use as measured by the multiple cropping index (MCI) declined from 1978 to 1986. Multiple cropping is the raising of more than one crop on the same piece of land each year. The MCI is derived by dividing total sown area by cultivated area. This index suggests land was used more intensively in 1978, at an MCI rate of 151, while the rate in 1986 stood at an estimated 148. ERS economists estimate that the index was pushed

Table 3--Land resources, selected years

Year	Cultivated area	Sown area	Irrigated area	Multiple cropping index
	--1,000 hectares--		--1,000 hectares--	
1955	110,157	151,081	24,667	NA
1965	103,590	142,291	33,055	NA
1975	99,710	149,545	43,284	NA
1978	99,390	150,104	44,965	151
1979	99,500	148,477	45,003	149
1980	NA	146,379	44,888	NA
1981	100,000	145,157	45,574	147
1982	100,000	144,688	44,177	NA
1983	(98,360)	143,993	44,644	NA
1984	(97,870)	144,221	44,453	NA
1985	(97,380)	143,626	44,036	148
1986	(96,890)	(143,779)	NA	(148)
1987	(96,090)	(144,700)	NA	(151)

NA = not available.

() = ERS estimates.

to a higher level, likely over 150, in 1987 because of local cadre pressure on farmers to raise grain production.

Irrigated area fell from nearly 45 million hectares in 1978 to an estimated 44 million in 1987, a decrease of over 2 percent. Irrigated area was reduced because some farmers and irrigation system administrators found it uneconomic. Irrigated area was reduced in other areas because of a falloff in investment in and maintenance of water control systems. Government leaders have realized the importance of continuing construction and maintenance work on local water control schemes. In 1985 and 1986 cadres mobilized many rural workers during the winter slack season to work on water control projects.

Soil erosion and loss of fertility was particularly serious when the household land contract system was first implemented (1979-84). In the beginning the contract was for a relatively short period, so that farmers had reduced incentives to invest in the soil. When the length of the land contract was lengthened to 15 years or more, farmers began to pay more attention to erosion and soil fertility.

Forests Declining

The felling of trees accelerated during the reform period to supply the growing timber demand for construction and housing. Forest area fell from about 120 million

hectares in 1979 to 115 million in 1985, a 4-percent decrease. This came in spite of continued afforestation efforts. From 1978 to 1982 well over 4 million hectares a year were reported to be afforested, and in 1985 over 8 million hectares were planted. In fact, forestry officials think that afforestation data is often exaggerated, and given that the survival rate of newly planted trees is about 40 percent, perhaps from 1 to 2 million hectares are afforested each year.

Forest cover as a percent of total land area has been dropping in many provinces during the past 35 years. For example, in China's most forested Heilongjiang province, forest cover was 52 percent in 1950 and is now 35 percent. The loss probably accelerated during the reform period, and has resulted in loss of valuable soil and water resources.

China's statistical authorities report that grazing area did not change from 1978, and was still 319 million hectares in 1985. The breakup of the commune system, the reform of the state farm system, and the establishment of grazing contracts with farmers and herders led to some overgrazing and damage to grassland area. Some herders saw only immediate profits to be gained by increasing herd size, and did not consider the harmful effects of exceeding pasture and rangeland carrying capacities. In fall 1985 agricultural sections of local governments in counties and townships began to implement the "Pasture Law," which seeks to expand livestock output and to prevent grazing animals from damaging range and pasture lands.

From 1978 to 1986 industrial output in rural areas increased substantially (see Aggregate Agricultural Output Section). One of the negative external effects of this growth, however, has been pollution of water resources. For example, residues from dyeing, paper, and electroplating mills in Zhejiang province seriously polluted water sources. Industrial wastes and sewage in most townships is dumped untreated into rivers, streams, and fields. This pollution is particularly vexing since demand for water has risen rapidly in the past 10 years and is projected to continue increasing to the year 2000.

Table 4--Forest and afforested area

Year	Forest area	Total area	Afforested area			
	1000 ha	1000 ha	Timber forest	Economic forest	Shelter forest	Other forest
1980	NA	4552	2927	823	513	289
1981	NA	4110	2531	630	637	312
1982	119 780	4496	2631	653	861	351
1983	NA	6324	3805	820	1098	602
1984	NA	NA	NA	NA	NA	NA
1985	115 250	NA	5291	793	1473	NA

NA = Data not available.

Source: China Ag Yearbook, 1985. Zhongguo Nongcun Tongji Nianjian, 1985, p.79. Rural Economic and Social Statistics of China, 1986, p. 25.

Figure 1
Agricultural, Industrial, and Urban Water Use



Source: "People Are Still Recklessly Destroying Water Resources: Groundwater Has Been Almost Used Up in Beijing, Tianjin, and Tangshan," *Shijie Jingji Daobao*, May, 12 1986, p. 14.
1 stere = 1 cubic meter of water.

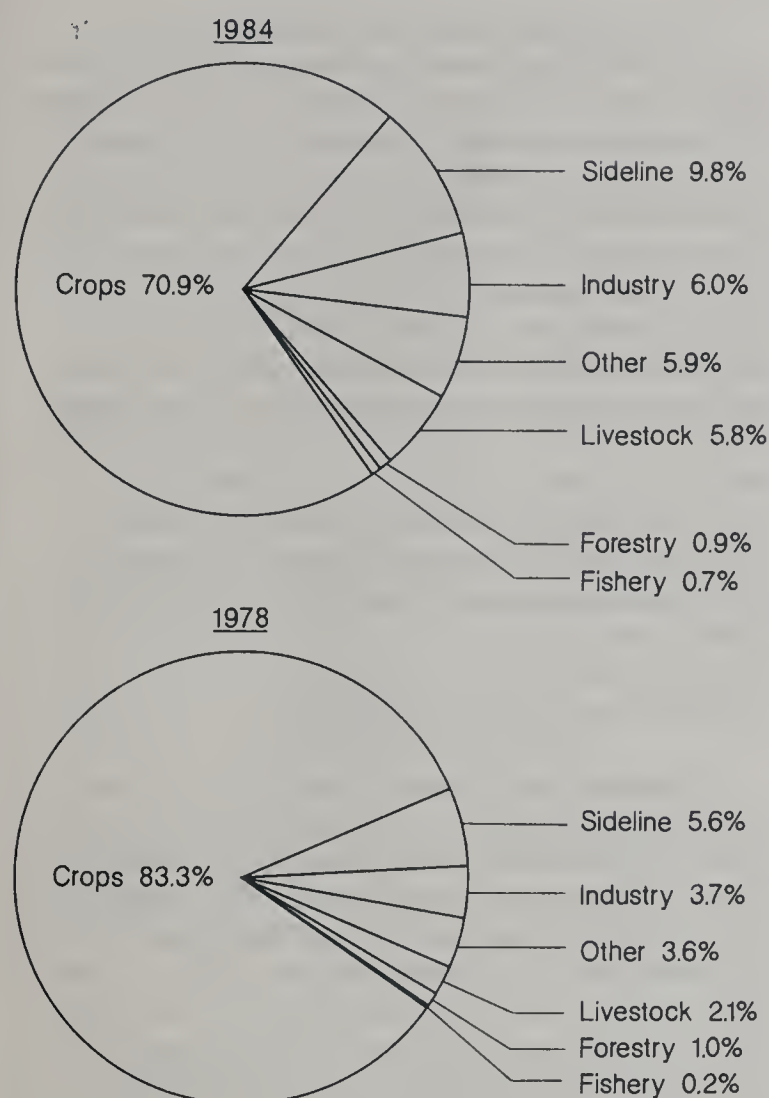
Changes in Rural Labor Use

The rural labor force rose from 313 million in 1978 to 379 million in 1986, an increase of 2.4 percent. About 98 percent of the rural labor force works in economic entities in the township (commune) system, and about 2 percent labor as workers and employees in state farms. Women constitute about 45 percent of the rural labor force, and this percentage did not change much during the reform period.

The rural labor force is composed of full, half, and subsidiary laborers. Males aged 18 to 55 and females aged 18 to 50, able to perform most agricultural tasks, are classed as full labor force units. Males aged 16 to 17 and 56 to 60, females aged 16 to 17 and 51 to 55, and weak laborers who cannot fully perform agricultural tasks, are classed as half laborers. Males under 16 years and over 60 years, females under 16 and over 55, and laborers who are sick and weak so that they can perform only subsidiary tasks, are classed as subsidiary laborers.

Before the reforms about 82 percent of the rural labor force cultivated crops, but by 1984 this had declined to 70 percent (table 19). In the 5-year period from 1978 to 1984 the rural labor force expanded by nearly 53 million, but the number of laborers raising crops remained fairly constant at about 270 million. The number of laborers raising livestock more than tripled, from 6.4 million

Figure 2
Rural Labor Use, 1978 and 84



in 1978 to 20.7 million in 1984, increasing from 2.1 percent of the total in 1978 to 5.7 percent in 1984. Employment in the fishing industry expanded from 613,000 in 1978 to 2.5 million in 1984, an increase of 300 percent.

The reforms allowed rural laborers greater freedom to form construction units, and the number of people working in construction jumped from 2.3 million in 1978 to 8 million in 1985. Here the proportion of people in construction to the total rural labor force increased from 0.7 percent in 1978 to 2.2 percent in 1984. The reforms also allowed rural residents to purchase tractors and trucks to transport goods. Laborers working in the rural transportation sector expanded from 796,000 in 1978 to 4.3 million in 1985. The number of laborers working in social services declined from 4.8 million in 1978 to 4.3 million in 1984. These laborers declined from 1.5

percent of the total labor force in 1978 to 1.1 in 1984. Since 1978 large numbers of rural laborers have left their fields to work in rural industry. In 1986 alone 9 million persons left the land to work in local industries.

Many factors affect the quality of the labor force, but on the whole quality probably improved from 1978 to 1986. Health care in rural areas probably declined, judging from the rise in infectious diseases, reduced numbers of hospital beds and medical staff, and reduced revenues for cooperative medical services. On the other hand, the current campaign to supply clean drinking water in rural areas should help to reduce the spread of diseases.

The assessment of rural education is likewise complex. The number of agricultural colleges expanded from 48 to 56, and attendant faculty and student numbers also increased. The number of agricultural scientific institutes at provincial levels increased from 144 in 1978 to 359 in 1983, and staff increased from 41,000 to 63,000. Agricultural scientific institutes at the prefectural and city level had similar growth. Enrollment and staff of secondary agricultural schools and regular senior middle schools declined, but these indicators expanded rapidly for agricultural middle schools. The number of junior middle schools, students, graduates, and faculty declined during the reform period. The number of primary schools decreased from 916,000 in 1978 to 798,000 in 1984. Also, the number of experimental stations decreased from 15,114 in 1980 to 14,694 in 1983. The number of veterinary and breeding stations, however, increased.

A 1984 survey of the education level of the rural labor force revealed the following:

<u>Educational attainment</u>	<u>Proportion of total</u>
Illiterate	20.89
Primary school	40.73
Agricultural middle schools	3.02
Junior middle schools	26.49
Senior middle schools	9.82
Institution of higher learning	0.05

While 1 in 5 rural laborers was illiterate in 1984, the reforms provided strong incentives for individuals to improve their

livelihood by increasing output and cutting costs through introducing new techniques. The number of handbooks, technical bulletins, journals, and newspapers mushroomed during the reform period. Managers and rural laborers are actively seeking learning and technology, and this quest for knowledge will have important effects on production in the next few decades.

Capital Inputs Rose in the Reform Period

Chemical fertilizer applied to fields rose dramatically during the reform period (figure 3). In 1978 farmers applied 8.8 million tons (nutrient weight basis) compared with 19.5 million in 1986, an increase of 120 percent. Fertilizer factories plan to expand output for 1987 and imports will continue. However, in early 1987 output lagged and shortages were reported, especially for high quality fertilizers, phosphate, and potassium. Domestic chemical pesticide output rose 6 percent to 223,000 tons, the first year-over-year increase in 6 years (table 20).

The stock of farm machinery expanded rapidly during the reform period. The number of small handguided tractors increased over 340 percent, from 1.4 million in 1978 to 4.7 million in 1986. The stock of large tractors expanded at a slower rate. Trucks used in rural areas increased very rapidly, from 138,000 in 1980 to 494,000 in 1986. Farm machinery sales increased again in 1986, and sales of small tractors to individual farmers continued. Only one out of ten machines was

sold to collective farm units. The outlook for 1987 is for continued growth of machinery output.

Rural consumption of electricity expanded 132 percent, from over 25 million kWh in 1978 to nearly 58 million in 1986. Part of the increase went to powering irrigation and drainage equipment, which expanded by 20 percent. Rural industry also expanded rapidly in this period. In spite of these impressive gains, rural areas continued to be energy-deficient in 1986. Government programs consist of expanding energy sources and conservation measures. New generating equipment will be installed in the Seventh Five-Year Plan, 1986-1990. Current conservation measures include producing energy-efficient stoves for rural homes, and expanding marsh gas generation and use of solar stoves.

Private Investment on the Rise

Private investment in the rural sector rose dramatically. In 1978 individuals were generally forbidden to invest. Then housing policy changed, which allowed rural residents to construct homes and other buildings. Beginning in 1979, more than 10 billion yuan a year was spent on new housing, and over half of all rural households built new homes. During the Sixth Five-Year Plan period (1981-85) 3.2 billion square meters of floor space were constructed. With the establishment of the land contract system, households invested in land reclamation, soil

Figure 3
Manufactured Input Use

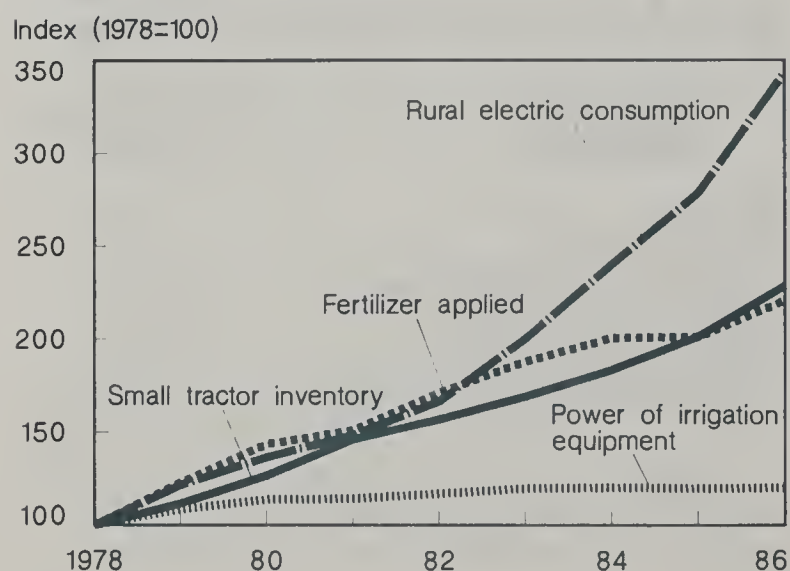
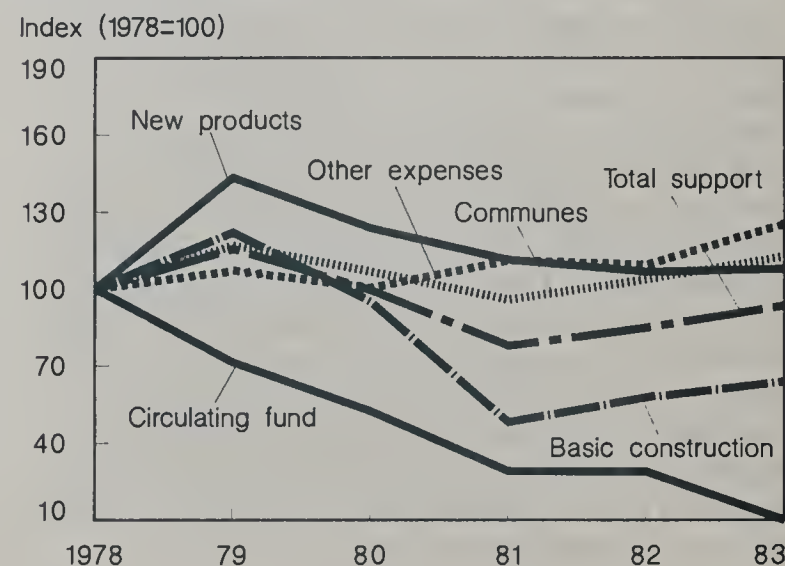


Figure 4
Government Investment in the Agricultural Sector



fertility, and irrigation equipment. Unfortunately, no quantitative data is available on these investments.

Households also invested in raising livestock by purchasing breeding stock, building pens and feeding facilities, and buying equipment. Policy changes also permitted households to invest in sideline production--processing agricultural goods and manufacturing handicraft items. Moreover, policy changes encouraged entrepreneurs. Individuals invested capital in a multitude of enterprises, such as manufacturing, mining, commerce, transportation, construction, and services.

Collective and state investment in the rural economy had a mixed record in the reform period. Collective investment in agricultural production declined as communes, brigades, and teams were reorganized into the township-economic cooperative household system (see "Decisionmaking in Farm Production Units" in *China: Situation and Outlook Report*, RS-86-8, July 1986). On the other hand, it appears that economic cooperatives in the new system have increased their investment in rural industry, construction, transportation, and services.

State investment in the rural economy generally seems to have declined (figure 4). Total national financial support for agriculture declined from 15.1 billion yuan in 1978 to 14.1 billion in 1983, a decrease of 6.5 percent.

Because the total Government budget expanded during this period, the percentage allocated to the agricultural sector declined from 13.6 percent in 1978 to 10.9 percent in 1983. At the same time state expenditures rose dramatically to cover the differences between the lower retail price and the increased purchase price for agricultural goods.

[Frederick W. Crook (202) 786-1616]

AGRICULTURAL PRODUCTION

Agricultural production in 1986 showed mixed achievements. Grain production increased by 12 million tons, and output of tea, silk cocoons, vegetables, and fruit increased. Output of cotton, oilseeds, and sugar-bearing crops declined.

The State Statistical Bureau reported that in 1986 47 million hectares were affected by drought and floods, more than in 1985 and the greatest affected area since 1978.

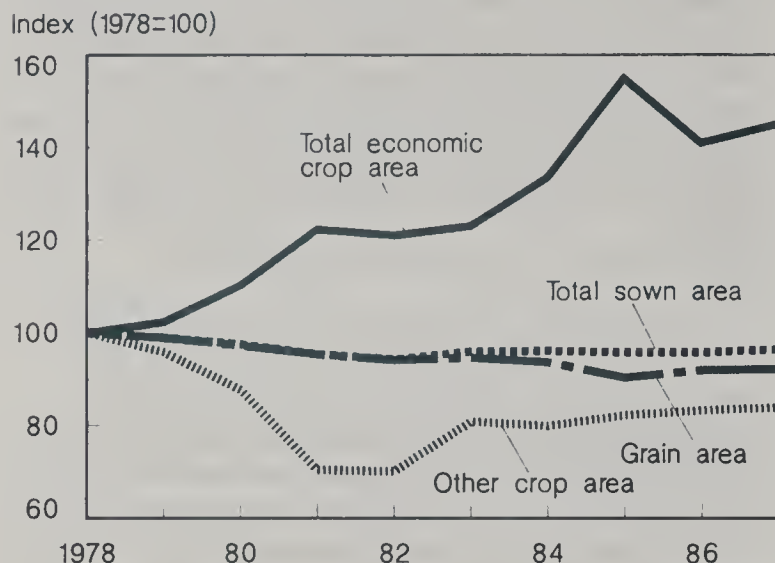
Within the past year new evidence indicates that sown area data published in China may be underreported. This implies that published yield data is higher than what is actually being harvested in the fields. This finding has important implications for estimating future crop production. Generally speaking, the current (biased) crop yields in China are quite high, which would lead one to conclude that future yield increases would be difficult and expensive to obtain. If in fact

Table 5-- State expenditures on agricultural subsidies

Year	Total	Subsidies to stabilize retail prices	Subsidies to support purchase of agricultural inputs	Subsidies to cover the difference between the cost of imported grain cotton, sugar, fertilizer, ag chemicals and retail prices
Million yuan				
1978	9386	5560	2391	1435
1979	18071	13602	2179	2290
1980	24207	17856	2041	4310
1981	32772	21772	2174	8826
1982	31836	24022	2135	5679
1983	34166	26952	1346	5868
1984	37000	32085	815	4100

Source: China Stat Yearbook, 1986, p.611

Figure 5
Index of Crop Area



the area is underreported, yields are also lower, so China's farmers may be able to raise yields more easily and at less expense than currently anticipated. If yields can be increased, China's farm goods may become more competitive in international markets, and improved yields may reduce demand for imported goods.

Economic and political reforms in 1978–1987 created a new economic system in which farmers had more power to make economic decisions. In this new environment farmers changed their crops. Area sown to all crops fell from 150 million hectares in 1978 to an estimated 145 million in 1987, a decrease of over 3 percent (see figure 5). Grain area declined from nearly 120.6 million hectares in 1978 to 108.8 million in 1985, a decline of close to 10 percent. Area sown to grain increased to 110.9 million hectares in 1985 and an estimated 111.1 million in 1986. The area sown to economic crops, which include cotton, oilseeds, hemp, sugar-bearing crops, and tobacco, increased from 14.4 million hectares in 1978 to an estimated 21 million in 1987, an increase of over 45 percent. Area sown to other crops, such as fruits, vegetables, and green manure crops, declined from 15.1 million hectares in 1978 to as estimated 12.7 million in 1987, a decrease of almost 16 percent.

Grain

Production Up in 1986

Wheat production in 1986 was a record 90.3 million tons, 4.5 million above the 1985

crop. Area sown increased by nearly 500,000 hectares to an estimated record of 29.7 million hectares. Wheat yields rose 3.5 percent to a record 3.04 metric tons per hectare. Spring wheat production, at 10.1 million tons constituted 11.2 percent of total wheat. Area increased to just over 5 million hectares, and yields rose to 2 tons per hectare, 6.5 percent over 1985. Winter wheat production rose to 80.2 million tons, 88.8 percent of total wheat. Area sown to winter wheat increased by 220,000 hectares to 24.6 million hectares. Winter wheat yields are estimated to have increased to 3.25 tons per hectare, 3.2 percent above 1985.

Rice output in 1986 rose 1.5 percent to 171.1 million tons, 2.6 million tons above 1985 but 7.1 million tons below the 1984 record. Area sown to rice expanded by over 200,000 hectares to 32.3 million hectares. Rice yields rose 36 kilos per hectare to 5.3 tons, which is still below the 1984 record of 5.4 tons per hectare.

Important changes have occurred in rice production since reforms were instituted in 1978. Total rice area decreased from 34.4 million hectares in 1978 to 32.3 million in 1986, a decline of about 6 percent. But yields increased 33 percent, from 3.97 tons per hectare in 1978 to 5.3 tons in 1986, and output rose 25 percent, from 137 million tons in 1978 to 171 million in 1986.

Northern rice is the smallest of China's four rice types (figures 6). During the reform period northern rice area did not change until 1985, when area increased by about 300,000 hectares. Yields rose only 18 percent in the 6-year period from 1978 to 1985—the slowest rate among the four crops. Production rose very slowly from 1978 to 1983, but sharp increases were obtained in 1984 and 1985.

Early rice, planted in late winter and early spring season, was the largest crop during most of the reform period. Farmers, however, found growing early rice was less profitable than other crops. Area fell from 12.2 million hectares in 1978 to 9.6 million in 1985, a decrease of 21 percent. Yields did increase, from 4.2 tons per hectare in 1978 to 5.1 tons in 1985, a rise of 22 percent. Yield increases about offset the effect of decreasing area, and early rice output declined only 4 percent from 1978 to 1985.

Double-crop late rice is usually planted after the early crop is harvested. Like its early-crop partner, area sown to the crop also declined, from 12.1 million hectares in 1978 to 9.7 million in 1985, a decrease of over 19 percent. Yields of this crop are the lowest of the four rice crops, but from 1978 to 1985 yields increased from 3.6 tons per hectare to 4.7 tons, giving it the highest rate of increase of any of the crops at 44 percent. Rapidly rising yields more than offset the decline in sown area, and production rose from 39.1 million tons in 1978 to 45.2 million in 1985, an increase of 16 percent.

By 1983 intermediate and single-crop late rice constituted China's largest rice crop. Area sown to this crop increased from 8.2 million hectares in 1978 to 10.5 million in 1985, nearly 29 percent. Yields climbed fairly steadily from 4.7 tons per hectare in 1978 to 5.9 tons, an increase of 44 percent. Production rose from 38.1 million tons in 1978 to 62.6 million in 1985, over 64 percent.

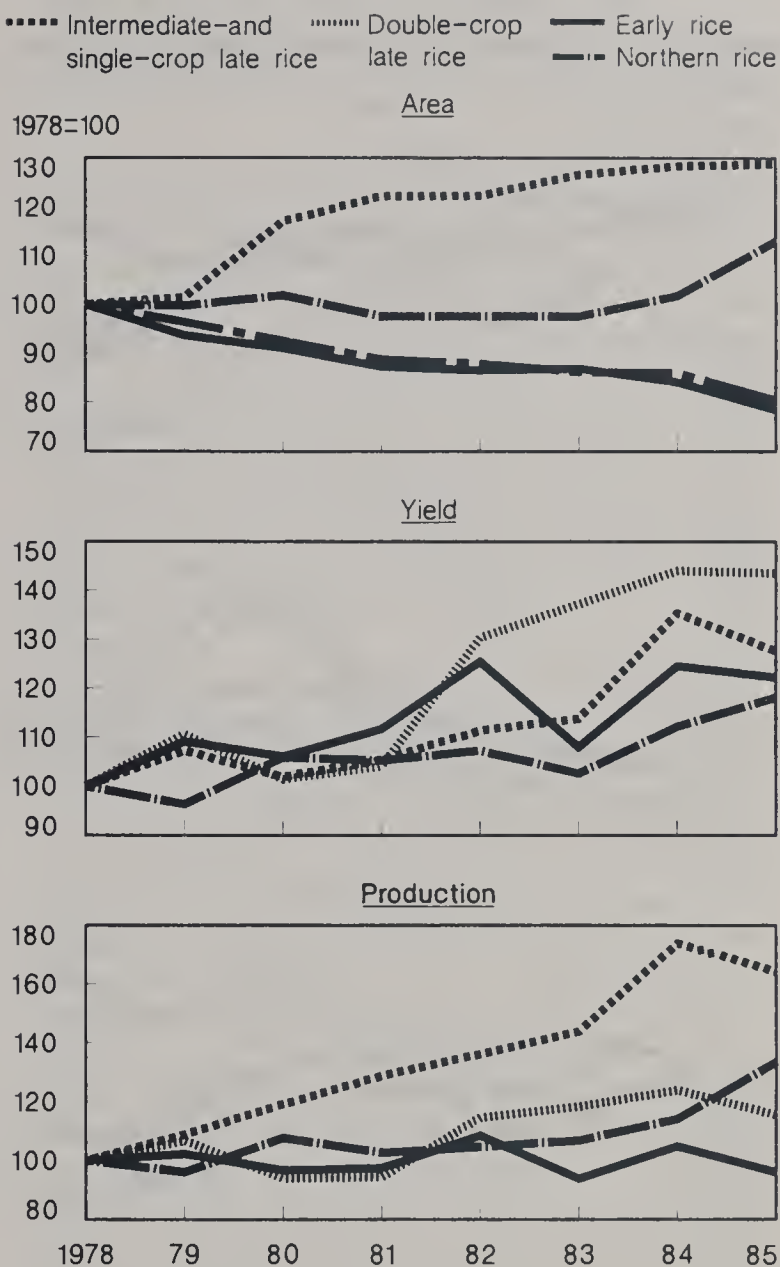
Hybrid rice area doubled from 4.3 million hectares in 1978 to 8.8 million in 1986. Hybrid rice yields also expanded, from 5.2 tons per hectare in 1981 to 6.5 tons in 1986.

Coarse grain production rose 5.2 percent in 1986 to an estimated 86.6 million tons. Area increased by over 930,000 hectares, but dry autumn weather in the North China Plain and heavy autumn rains in the northeast region restrained yield increases to less than 2 percent. Area sown to coarse grains decreased 15 percent, from 32.7 million hectares in 1978 to an estimated 27.9 million in 1986 (figure 7). Coarse grain yields increased by 29 percent in the period, and total output expanded by about 10 percent from 78.6 million tons in 1978 to 86.57 million in 1986.

Corn production in the reform period expanded by 23 percent, compared with substantial percentage reductions for the other coarse grain crops. Corn output rose from 55.9 million tons in 1978 to an estimated 69 million in 1986, 5.2 million tons above 1985 but below the 73.4-million-ton record of 1984. Area sown to corn declined from 1978, hitting a low point in 1982 of 18.5 million hectares. But area increased to 19.2 million hectares by 1986, just 800,000 hectares short of the 1978 figure. Corn yields increased 28

Figure 6

Rice Area, Yield, and Production



percent during the reform period, the best performance of the five coarse grains.

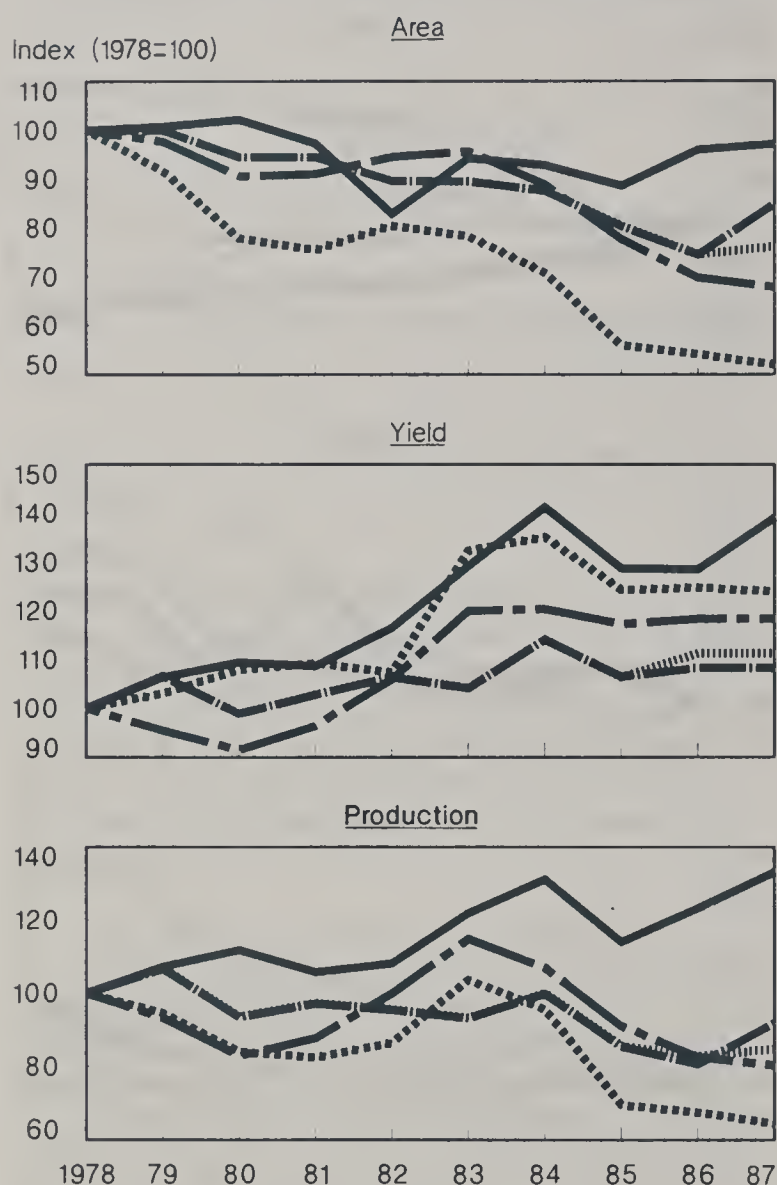
Sorghum production during the reform period decreased from 8.1 million tons in 1978 to 5.4 million in 1986, a decline of 32 percent. Yields increased 24 percent during this period. The major cause for the production decline was a nearly 45-percent decrease in area. Demand for sorghum as a food grain declined as per capita incomes rose and consumers chose more preferable grains like wheat and rice. Farmers planted less sorghum area because they could afford more preferable kinds of grain, and hence did not have to plant as much sorghum for their own consumption and could raise more profitable crops.

Millet output also decreased from 6.6 million tons in 1978 to 5.4 million in 1986.

Figure 7

Coarse Grain Area, Yield and Production

— Corn Sorghum — • — Millet — — — Barley Oats



Yields increased by 18 percent, but farmers planted 31 percent less area in 1986 than in 1978. While consumers, especially those in north China, have a higher preference for millet than sorghum and potatoes, it is still a less preferable food grain than wheat and rice, and area decreased.

Barley production fell from an estimated 7.3 million tons in 1978 to 6.1 million in 1986, a decrease of 24 percent. Less demand for barley as a food grain was partially offset by demand as a feed grain and as a stock to manufacture beer. Barley area fell by 19 percent in the reform period and yields gained only about 8 percent. Agronomists and plant breeders in China admit few resources have been allocated to raising barley yields. The crop is grown primarily in the Yangze River Valley. Farmers there sow the crop in autumn

and let nature take its course, harvesting it if it is profitable to do so, or plowing it under as a green manure crop if yield prospects are low.

Oat production is estimated to have decreased nearly 14 percent from 1978 to 1986. Area sown to the crop fell an estimated 24 percent because of reduced demand for the crop as a food grain.

Potato output during the reform period declined from 31.7 million tons to 27.0 million, a decrease of 15 percent. Traditionally potatoes have been regarded as food for the poor, and it is not surprising that as incomes rose since 1978, demand for potatoes decreased. Yields increased by 11 percent in this period, but area fell from 11.8 million hectares in 1978 to 8.7 million in 1986, a 26-percent decrease.

Production Likely Up in 1987

Total grain output for 1987 is forecast at 401 million tons, 10 million tons above the 1986 crop but 6 million below the 1984 record. Area is forecast to expand by nearly 300,000 hectares to 111.1 million. The Government is using many strategies to induce farmers to sow more of their land to grain. Government procurement prices for grain have increased slightly and it is not known what effect these price increases will have.

The full range of procurement and market prices for other crops and input prices are not available making it nearly impossible to determine how farmers may weigh alternative options to maximize their farm income. Party committees and branches function in rural areas and local cadres in some areas continue to induce farmers to follow national policies. This political process is difficult to observe and quantify, so that one has great difficulty trying to assess what effect stated policies will have on sown area and cropping patterns.

Wheat production is forecast to be 89 million tons, 1.3 million tons below the 1986 record. Area is forecast to decline by 96,000 hectares, and yields are expected to be about the same as last year. Dry weather in the North China Plains in fall 1986 limited the area that could be sown. Reduced area is the primary reason for the lower production

forecast for 1987. Spring wheat area, yield, and production should be about the same as in 1986.

Rice output is projected at 176 million tons in 1987 (paddy basis), only a 2.9-percent increase from last year's crop. Rice area will likely rise by over 200,000 hectares from 1986. Yields are forecast to increase to a record 5.4 tons per hectare because of better management practices, improved seed, greater use of high yielding hybrids, and greater use of chemical fertilizers.

Coarse grain production is forecast to rise to 93.2 million tons, 7.6 percent above 1986. Corn area will increase to meet higher domestic and foreign demand. Greater area will be sown to barley to increase supplies for feed and beer. Sorghum and millet area likely will be reduced because of lower demand for these grains. Coarse grain yields are forecast to increase 6.2 percent, mainly because of projected increases in corn yields. [Frederick W. Crook (202) 786-1616]

Oilseeds

China's 1986 total oilseed production declined because of bad weather and a general policy reemphasizing grain production. Policy and weather problems resulted in decreases in total oilseed area and lower average yields. Demand for vegetable oils continued to expand, largely because of rising incomes. Consumption of soybeans remains primarily as food, although the expansion of the feed industry is leading to more soybean meal demand. Rapeseed oil is still the primary oil in southern China. China purchased much larger quantities of soybean oil and other oils, particularly palm oil, during 1986/87. The country continued exporting soybeans from northeast China, but also imported a smaller quantity of beans last year. In 1987, the total oilseed crop should increase slightly as the increase in output of rapeseed, peanuts, and soybeans will more than offset the decline in output of sesame and other oilseeds.

Production Declined Slightly

Oilseed production decreased a moderate 2.3 percent in 1986 to 30.8 million tons. Total area declined less than 1 percent, as decreases in cottonseed and sunflowerseed areas more than offset increases in soybean, peanut, and

rapeseed area. Lower average yields in 1986, about 1.5 percent, were responsible for more than half the reduction in total oilseed output. Northern drought and southern floods reduced overall yields, particularly of peanuts.

Soybean output reached 11.55 million tons, surpassing the previous record of 11.3 million in 1936. Production in 1986 was 10 percent above 1985, largely because area expanded 6.7 percent. Two factors helped boost soybean area in 1986: the Government increased the procurement price of soybeans and soybean oil in Heilongjiang, Jilin, Liaoning, and Nei Mongol, and continued and growing exports encouraged farmers to plant more soybeans. The result was the expansion of the 1986 area by 520,000 hectares to 8.24 million, the highest since 1983.

Cottonseed production in 1986 again declined sharply because of another big drop in area, about 16 percent below the previous year's planned reduction in cotton output. Average yields of cottonseed were about equal to the previous year's because of unusually dry weather in the spring and early summer throughout the North China Plain. Production, therefore, fell to just over 6 million tons, roughly 16 percent lower than the previous year and 43.5 percent below the record of 1984. With the unexpected increase in cotton consumption, stocks have been depleted in the past 2 years. The Government has increased cotton contract prices to encourage farmers to increase areas in both northern and central China. Cottonseed production in 1987 should surpass the low output of the past 2 years.

Market demand for peanuts helped hold area steady in 1986, after a spectacular increase in both area and production in the previous year. The dryness and floods in the two major peanut-producing provinces, Shandong and Guangdong, caused the setbacks in overall yields in 1986, about 12 percent lower than the previous year's record. Peanut production (in shell), therefore, fell 12 percent to 5.88 million tons.

Rapeseed area kept growing in 1986, almost 10 percent over the previous year, after the 32-percent surge in area in 1985. Despite the government policy which encouraged farmers to plant more grains in 1985, rapeseed area continued to expand. Strong consumer demand and high negotiated

and free market prices provided the incentive. Rapeseed yields were down slightly, roughly 5 percent, because of extended dry weather in the spring. Output increased to a record 5.87 million tons last year, almost 4 percent above the 1982 record.

The 1986 sunflowerseed area was cut back sharply because excessive wet weather in the Northeast region led to a poor 1985 crop. Average yields bounced back from the previous year's low, but were still far below the 1983 record. Production was only about 1.5 million tons, roughly 12 percent below the output of 1.7 million in the previous 2 years.

Sesame seed production dropped 12 percent to 608,000 tons. Sesame oil is one of the major vegetable oils in China. Farmers tried to maintain the same area as in 1985. But dry weather in northern China led to lower yields and smaller 1986 output. Other oilseed production, including castor beans, also declined because of smaller area and lower yields.

Production to Rise in 1987

Production of all oilseeds should increase, and most of the increase will come from more normal yields, as continued emphasis on grain crops will limit area expansions. Total oilseed area is expected to increase less than 2 percent, with the largest increases coming from cottonseed and rapeseed. Rapeseed area reportedly expanded by about 3 percent. The Government has announced an increase in cotton procurement prices along with subsidies to buy fertilizers. Cottonseed area therefore will be up by a bigger margin, ranging from 9 to 16 percent. But an early crop planting intention survey showed that cotton area would be up only 5.7 percent. Nonetheless, given higher contract prices, fertilizer subsidies, and a preprocurement advanced cash program, cotton area should be up more than indicated.

Peanut area likely will stay close to the 1986 total, although procurement prices have been raised, and soybean area may go up marginally or stay roughly the same as last year. The sunflowerseed crop is forecast to decline because of relatively lower rates of return, and area is projected by the early planting intention survey to go down by as much as 30 percent.

Preliminary estimates put the 1987 soybean crop at a record 11.75 million tons. Growing demand for soybean oil, livestock and feed development, and exports are expected to boost production, probably to 14-15 million tons by 1990. Soybeans are likely to be one of the fastest-growing components of oilseed production. Area expansion will largely be limited to the Northeastern region.

Cottonseed output is forecast to rise about 15 percent to approximately 7 million tons, following an expected increase in cotton production in 1987. Yield and area increases are expected to contribute equally to the rise.

Peanut production is estimated up approximately 12 percent to 6.6 million tons this year, roughly the level of the record 1985 crop. The increase is expected to come exclusively from more-normal yields. For the rest of the decade, further expansion of peanut area will likely be limited, particularly now that the Government is calling for a return to grain production.

Rapeseed output is projected at 6.1 million tons, and area sown may expand to a record about 5.1 million hectares in 1987. Yields will improve slightly, but long-term growth may slow down as varieties with lower erucic-acid content expand. Total area of the new varieties is estimated at only 133,000 hectares in 1986. Area is likely to expand to about 200,000 in 1987.

Finally, sunflowerseed production is forecast to remain about the same as in 1986. The expected higher yields will offset the decline in area.

Edible Oil Industry Upgraded

With the rapid development of China's economy and overall increases in both urban and rural incomes, consumers began to shift cooking oil consumption away from animal fats, particularly pork fat, to vegetable oils. Despite significant increases in oilseed output, standards and quantity of edible oil supplied are still low, compared with other countries. The Government guarantees each person in urban areas 6 kilograms of vegetable oil a year at the government-fixed price. Additional oil is provided at free-market and negotiated prices.

Because of the transportation network and location of oil mills, the geographical availability of vegetable oils is different. Soybean and sunflowerseed oils are preferred in the Northeast; peanut oil in Shandong, Henan, Hebei, Tianjin, Beijing, Shanxi, Guangdong, Guangxi, and Sichuan; cottonseed oil in Shandong, Henan, Shanxi, and the provinces along the Yangtze River; and rapeseed oil throughout southern China. Other oils produced and mostly consumed in the rural areas include sesame, edible linseed, teaseed, and a small amount of corn oil.

In 1985 the Government owned 1,418 vegetable oil refineries and 6,802 workshops, an increase of 31 percent and 8.8 percent respectively over 1980. The processing capacity of government oil mills reached 18.48 million metric tons by the end of 1985, about 6.8 million more than in 1980. In 1985, the state-owned refineries produced 2.42 million tons of vegetable oil, 1.07 million or 79 percent more than in 1980. However, China has placed increasing emphasis on refining, and setting up more extraction plants has been a major program. During the Sixth Five-Year Plan (1981-85), the Government built 146 solvent extraction oil workshops, and reconstructed and enlarged a number of old ones, adding 3.17 million tons of capacity for solvent oil extraction. In 1985 the state-owned oil refineries had 430 solvent extraction oil workshops, with a production capacity of 4.98 million tons per year, up 178 percent from 1980.

In the current Five-Year Plan (1986-90), China will continue to popularize the solvent extraction method. In 1990, the output of edible oil through solvent extraction will be 60 percent of the total. In contrast, the production capacity using solvent extraction was only 27 percent of the total in 1985.

Oilseed Exports Continued; Imports Resumed

China continued exporting soybeans and oilseed meals in 1986, and will likely continue exporting in 1987 and in the next few years in order to earn foreign exchange. The growth of exports, however, is expected to level off. China has ambitious plans to expand mixed and compound feed production, from the current 18 million metric tons to 50 million in 1990 and more than 100 million in 2000. But

exports of oilseeds and oilseed meal are expected to continue until the demand for oilseed meal from the livestock sector makes exports prohibitive. In any year in which oilseed output declines, such as in 1986, China can return to soybean imports. In 1986/87, China has also increased edible oil imports, primarily palm oil and soybean oil.

Soybean, cottonseed, and rapeseed meal remained as leading export items in 1986. The level of exports in 1987 is expected to be similar to previous years. Soybean meal exports could increase slightly because of increasing demand from European markets. According to the Ministry of Foreign Economic Relations and Trade, soybean meal exports in the last 2 or 3 years consist mostly of soybean expellers (a milling byproduct), only about 15 percent or less being soybean cakes. The soybean expellers have likely been shipped to some Asian countries in which they are used in feeding livestock.

In 1987, China is expected to continue soybean and edible oil imports. The decline in oilseed output in 1986, particularly peanut and cottonseed, along with growing demand for vegetable oil for human beings and industrial use, will keep imports at least at 1986 levels. [Francis C. Tuan (202) 786-1616]

Cotton

The unexpectedly rapid decline in cotton production in 1986, coupled with effective government programs that encouraged exports and domestic consumption, particularly nonmill uses, have reduced China's overstocked cotton during the last 2 years. As a result, China has raised cotton procurement prices this year to promote production. Government officials have called for a 1987 output higher than the annual target of 4.25 million tons set in the new Seventh Five-Year Plan. In short, without a successful cotton harvest, China is expected to either cut its exports in 1987, or increasingly depend upon imports.

Decline in Cotton Output and Area Continued

Cotton production for 1986 was expected to be between 1985's 4.15 million tons and the annual target of 4.25 million. The expected level would provide enough cotton for both

growing domestic consumption and export demand. However, drought problems prevented sowing in the spring. This, together with reduced farmers' income due to sales of lower grade cotton to government procurement stations, resulted in a nearly 15-percent drop in area in 1986. With yields of the 1986 crop roughly equivalent to the previous year, output decreased again this year to only 3.54 million tons, 15 percent under the 1985 level, which itself was 34 percent below the 1984 record.

According to press reports, cotton areas in all major producing provinces except Xinjiang decreased in 1986. For example, in Henan province, China's third-largest producer, 800,000 hectares were planted. However, with precipitation in late June through July at only 40 percent of normal, 153,300 hectares had to be taken out. Reportedly, overall quality of 1986 cotton output was much better than 1985. This should help boost farmers' confidence and resume incentives to grow cotton this year because of higher unit prices paid by the Government.

Consumption Up Sharply; Ending Stocks Lower

Because China had made commitments in the last couple of years to sell extra cotton for wadding use, subsidize poor areas with cotton, and provide cotton as part of wages for people working on specific projects, non-mill use of cotton totaled 870,000 metric tons during 1985 and 1986. Recent Chinese

media articles revealed that total domestic consumption plus exports grew about 39 percent in 1985 from the previous year, and another 11 percent in 1986. The same source also indicated that overstocking is disappearing, and warned that output of cotton should not drop further. The output should return to a yearly output of 4.50 million tons.

Given sharply expanded mill and non-mill uses, exports, and much smaller output in the last 2 years, 1986/87 ending stocks were drastically drawn down to about 1.95 million tons (9 million bales). The ending stocks 2 years ago were more than twice as large (figure 8).

Cotton Exports Up

Preliminary statistics released from China indicate that the country exported about 558,100 tons of cotton in 1986, up 211,000 from the previous year. China has aggressively promoted cotton exports, particularly in the first half of the year, and is expected to continue exporting this year if output can be raised to the targeted level.

Despite the sharp decline in cotton stocks, the Government has apparently made a commitment to export. First, China has set up cotton production bases to produce better-quality cotton for exports. Second, the country would like to maintain its market share, particularly in Asia, because foreign exchange is now not only important to the nation as a whole, but also critical to the individual regions and provinces. Finally, prices in international markets have been rising since the end of 1986.

A major obstacle in promoting exports may have been the inferior transportation infrastructure. China might have sold more low grade cotton at the end of 1986 and in the beginning of this year. If China would plan to transfer cotton produced in inland provinces, the country could have a better chance to maintain its export commitments.

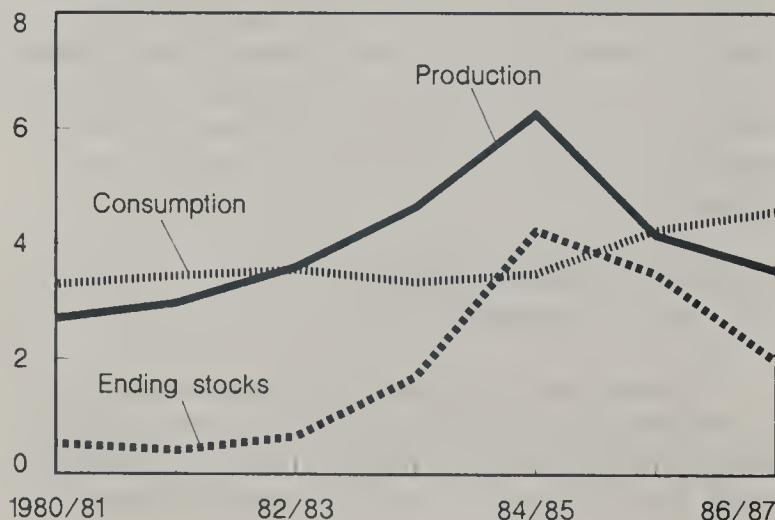
Increases in Cotton Area and Output Forecast

Cotton output in 1987 could grow sharply, while area may also increase to an estimated 4.8 million hectares. The Government reportedly has a target of 5.13 million

Figure 8

Cotton Production, Consumption, and Ending Stocks

Million tons



hectares, a jump of about 17 percent over 1986 and essentially the same as in 1985.

Despite less than 5.13 million hectares being expected by the Government, according to the latest crop planting intention survey, China's actual area will likely increase more than the predicted 5.7 percent. The Government has resumed fertilizer bonus and cash advance programs to promote cotton production this year. The newly reinstituted programs will allow farmers to purchase 70 kilograms of fertilizer at the fixed state price, much lower than market prices, for every 100 kilograms of cotton sold to the Government.

Procurement prices for standard grade cotton purchased by the Government have been raised for both northern and southern growing areas. The 1987 prices, along with those of the previous 3 years, are as follows:

<u>Year</u>	<u>Region</u>	<u>Price setting</u>		<u>Price</u>
		Quota	Bonus	
		(Percent)		(yuan/50kg)
1984	South	60	40	163.30
	North	20	80	180.79
1985	South	60	40	163.30
	North	30	70	176.42
1986	South	60	40	163.30
	North	40	60	172.04
1987	South	30	70	176.42
	North	30	70	176.42

The procurement price for cotton in the south increased 8 percent, compared with a moderate rise of 2.5 percent for the north. The higher prices, together with the fertilizer bonus program, should increase farmers' incentive to grow more cotton this year. Both area and yields will be higher. Output for 1987 could grow sharply to approach the 4.25-million-ton average goal, set for the rest of the decade. [Francis C. Tuan (202) 786-1616]

Other Crops

Fruit and aquatic products production grew in 1986, but tobacco and sugar dropped (table 6). Unfavorable price ratios between sugar and other crops, such as grains, were responsible for the decline in sugar production.

Sugar Production Down Moderately

Production of sugar crops in 1986 decreased slightly to 58.6 million tons. Sugarcane output declined 2.5 percent to just over 50 million tons, and sugarbeet outturn dropped 6.8 percent to 8.3 million tons. Sugar production is preliminarily estimated down by about 5 percent to 5.3 million tons, raw value. According to the Ministry of Light Industry, the rate of profit from cane and beets, compared with other cash crops and grain, is unfavorable to sugar crop producers. For example, in the 1950's the price of grain was 117.4 yuan per ton and the price of cane was 23.6 yuan per ton. The price of cane was about 20 percent of the grain price. In the early 1980's, the percentage dropped to 17.5 percent. Now, the free market price for a ton of grain is 560 yuan, and the price of a ton of cane is 70 yuan. The price ratio declined sharply to only 12.5 percent.

In Heilongjiang, the average per mu net income from beets in 1986 was 41.45 yuan less than the income from corn, 34.68 yuan less than soybeans, and 96.45 yuan less than rice. As a result, sugar crop production could not keep up with the growing demand for sugar in both urban and rural areas. Reportedly, there were 521 sugar mills in China during the 1985/86 milling season, of which only 442 were in operation.

The major reduction in cane area occurred in Fujian and Guangdong provinces, which together were responsible for about 56 percent of China's 1985 sugar production. The area increases in Yunnan and Guangxi provinces, which together accounted for 28 percent of the nation's sugar production, offset part of the area reductions.

Estimated sugar consumption in 1986/87 is slightly higher than the previous year, approximately 6.25 million tons. Imports

Table 6--Other agricultural product output

Product	1983	1984	1985	1986
	1,000 tons			
Sugar crops	40,323	47,946	60,648	58,590
Sugarcane	31,141	39,519	51,549	50,280
Sugar beet	9,182	8,284	8,919	8,310
Sugar	3,771	3,740	4,513	1/ 4,300
Tobacco	1,381	1,789	2,425	1/ 1,615
Flue-cured	1,151	1,543	2,075	1,380
Tea	401	414	432	463
Jute and hemp	1,019	1,492	4,119	1,430
Silk cocoons	340	357	371	372
Aquatic products	5,458	6,194	7,052	8,130
Rubber	172	189	188	1/ 190
Fruit	9,487	9,845	11,639	13,400

1/ USDA estimates.

Sources: China Stat Yearbook, 1984, 1985, and 1986; China Ag Yearbook, 1983, 1984, 1985, and 1986; and the 1986 SSB Communique.

continued to make up the deficit. In 1986, imports were about 1.2 million tons, down 38 percent from 1985's 1.9 million, according to the most recent statistics released by China's Customs Service.

China plans to increase sugar crop production for the next several years mainly by raising both sugarcane and beet yields, based on the report of the Food Grains and Cash Crop Study Group, Chinese Academy of Agricultural Sciences. The report forecasts little area increase in sugarcane production, and possible expansion of beet production area in the Northeast. Total sugar crop production is estimated by the Chinese Government to rise to about 105 million tons in 1990.

Tobacco Output Dropped Sharply

Tobacco output declined more than 33 percent in 1986 to only about 1.6 million tons, mainly because of decreased area. Tobacco area dropped 28.4 percent in 1986 to only 940,000 hectares, because the previous year's record crop occupied storage space and caused the Government to procure tobacco leaf at lower prices for above-contract sales. Production of flue-cured tobacco also decreased significantly, to only 1.38 million tons in 1986.

Despite quality increases in flue-cured tobacco in 1985 and 1986, inadequate production of high quality leaf was still a

major problem. Along with last year's new grading system intended to encourage farmers to produce quality tobacco, the Government changed the pricing system further in 1987 by raising the contract price of the top grade flue-cured tobacco from 4.4 yuan per kilogram in 1986 to 5.6 this year. Low grade flue-cured tobacco procurement prices were cut further this year from 0.02 yuan per kilogram in 1986 to 0.01 yuan. The changes should further encourage the production of high quality leaf.

In 1986, China's tobacco and cigarette exports jumped 25 percent over the previous year. Over 25,000 tons of unmanufactured tobacco were sold to 20 countries, including Britain, Czechoslovakia, France, West Germany, Romania, and the United States. The increased exports have been attributed to the country's efforts in developing fine strains of tobacco and expanding area for high-quality tobacco.

Total Fruit Production Up In 1986

Production of fruits increased more than 15 percent in 1986 to 13.4 million tons. In general, apples showed a drop from the previous year, as the country's other major fruits, such as oranges and pears, increased. But exports of apples, oranges, and pears decreased last year, according to the Fruit Department of the Ministry of Commerce. In 1986, China exported 40,880 tons of apples, down 5 percent; 15,773 tons of oranges, down

2 percent; and only 477 tons of pears, down 74 percent. The exports went mostly to Eastern Europe and the Soviet Union.

The primary reason for the drop was deterioration in fruit strains. For example, China's oranges were unable to compete in the world market and had to be sold at reduced prices overseas. Farmers found it more profitable to sell fruit on the home market. In the world market, U.S. oranges could sell at \$1,000 a ton and Taiwan oranges at \$600 a ton, while oranges from China's Guangxi Province were \$300 a ton. In northern China, Guangxi oranges sold at about 2.4 yuan for a kilogram, about twice the export price. [Francis C. Tuan (202) 786-1616]

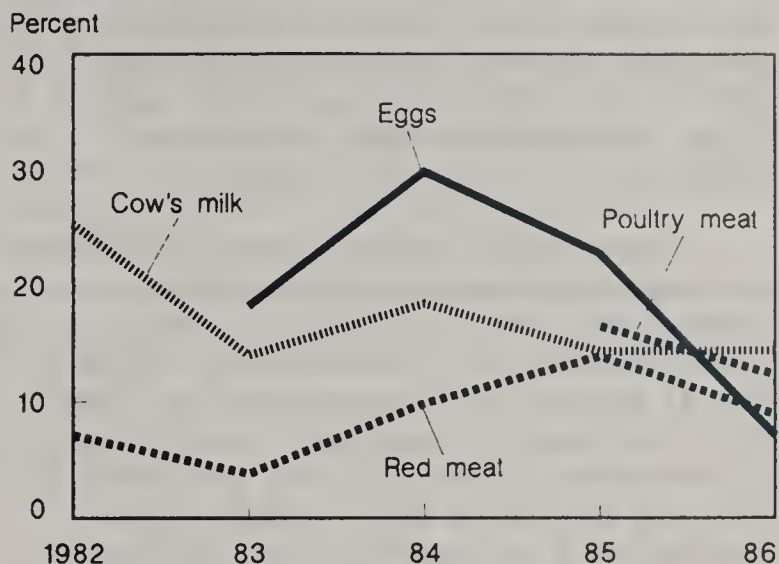
Livestock

Annual production in China's livestock sector increased in 1986, both in value and in output. The growth rate declined as expected, but was still impressive. The slower growth resulted from the significant drop in grain output. Strong and growing demand for livestock products, and improved productivity, particularly of pork, have kept the sector expanding. Continuous development of feed manufacturing was also a factor. In 1987, output of major livestock products, except milk and poultry, is expected to grow at a slower rate than in 1986. Processed feed production will continue to expand. Long-term growth of livestock output is expected to be considerably slower because of the expected slowdown in grain production.

Growth Continued in 1986

Production of livestock products continued to expand in 1986, although output growth rates, except for milk, declined from the previous year (figure 9). Total red meat production, including pork, beef, and mutton, grew to 19.18 million tons, an increase of 8.9 percent from the previous record in 1984 (table 18). The expansion in meat output, especially pork, was attributed to strong demand induced by growing incomes, and to higher productivity because of improved breeds and more processed feed. In addition, some improvement in transporting meat to deficit areas also contributed to the growth. However, the high growth rate for livestock products was mainly caused by lower-than-record grain output in both 1985

Figure 9
Annual Growth Rates of Major Livestock Products



and 1986. Higher prices of feed grains started in early 1986 and extended to early this year. These were obviously offset by strong consumer demand, increased productivity, and improved transportation systems. The elimination of fixed prices on livestock products, starting from early 1985, also helped make producers profitable, even with increasing costs in raising livestock and products.

Pork output, which contributed roughly 94 percent of China's red meat output in the past few years, reached about 18 million tons, an increase of 8.6 percent over the previous year. Demand for lean pork meat has been continuously growing, particularly in big cities. Improved breeds have provided more lean meat to the markets, but still cannot meet the demand.

The year-end hog inventory was up slightly in 1986, by 1.7 percent, compared with an increase of more than 8 percent the previous year. Annual slaughter rates, which advanced in the past several years, declined slightly (table 18). The leveled-off slaughter rates were likely caused by the decreased availability of feed grains.

Slaughter rates of ruminant animals, including cattle, sheep, and goats, continued improving in 1986. Beef production has made significant growth in the last 2 years, in contrast to the slow increase in mutton output. The rapid growth of beef output is probably linked to the rapid development of

China's dairy production around large urban centers. Young dairy bulls are now raised for beef instead of culled and killed as in the past. Other factors include an expansion of about 1.67 million hectares of improved grassland in each of the last 3 years, and higher beef prices resulting from the elimination of fixed price policies.

Production of dairy products, particularly cow's milk, again grew rapidly in 1986, although the rate of increase is slowing. Cow's milk rose to 2.86 million tons, up more than 14 percent from the previous year and more than double 5 years ago. Dairy cows totaled around 1.8 million head, compared with only 817,000 in 1982. China's dairy farming has grown rapidly in the last 2 years. Since 1984, the cost of milk production has increased substantially because of higher prices for fodder, coal, water, and electricity. For instance, in Beijing, the cost of producing one kilogram of milk averaged about 0.37 yuan in 1981. In the first half of 1986, the figure rose to 0.54 yuan. But the purchase price of milk remained at 0.48 yuan. Running at a loss, many dairy farms have found it hard to go on with production, though they could get subsidies from the Government.

For the first time, the Chinese Government has published poultry meat output and yearend inventories for 1984 and 1985. The published statistics, along with egg output, are as follows:

	<u>Unit</u>	1984	1985	1986
Poultry inventory	Mill. birds	1,669.631	1,978.907	2,150.000
Poultry meat	Mill. tons	1.375	1.602	1.870
Eggs	Mill. tons	4.316	5.347	5.730

The 1986 statistics are preliminary. Egg production increased only 7 percent in 1986, compared with nearly 23 percent a year earlier. The poultry sector was also affected by rising production costs. The impact may be relatively lower, because the newly developed poultry subsector, particularly around big cities, is heavily dependent upon feed manufacturing. The feed industry reportedly kept growing in 1986 and reached an output of about 18 million tons, an increase of 20 percent over the previous year. Steady growth of income, higher procurement prices, and shortages of lean pork meat have also contributed to poultry's continued growth.

Wool output increased slightly in 1986, after 3 consecutive years of decline. The main reason is higher retail prices. Before the elimination of fixed prices for procurement of wool and goat skins, the procurement price for one kilogram of wool was 1.075 yuan. In 1986, retail prices for wool ranged from 1.75 to 2 yuan per kilogram. Goat skin prices increased from 5 to 6 yuan to 24 to 30 yuan in 1986. As a result, sheep and goat inventory grew 6.4 percent last year to 165.83 million head, reversing the steady fall in year-end inventories over the previous 4 years.

Slower Expansion Expected in 1987

Strong demand for livestock products and improvement of the livestock sector will continue in 1987. But livestock production, except milk, will grow more slowly this year. Meat output, particularly pork, will be sluggish. For the remainder of the Seventh Five-Year Plan period, average annual gains in livestock output will decline.

Bumper grain crops between 1982 and 1984 provided the base required for rapid livestock sector expansion in 1984, 1985, and part of 1986. However, a 44-million-ton reduction in grain output over the last 2 years, together with export commitments of coarse grains and soybeans, for example, to the USSR and Japan for the rest of the decade, will limit domestic feed grains to livestock feeding. In 1986, China resumed imports of more than 2 million tons of corn, mainly used as livestock feed in south China.

Red meat output, including pork, beef, and mutton, is expected to grow less than 5 percent this year, compared with about 14 and 9 percent in 1985 and 1986, respectively. In 1986, yearend hog inventory grew only about 1.7 percent. Given smaller sow numbers in 1986, hog slaughter will grow at a slower rate in 1987. Slaughter rates stagnated last year and will likely remain so in 1987 (table 18). A smaller increase in slaughter this year would almost ensure a slower growth in pork output, because the average slaughter weight of marketed hogs has gained little in the last couple of years. Since consumers, particularly those around big cities, prefer lean pork, China will continue to import foreign breeds to improve native hogs, which tend to produce more fatty meat. Furthermore, Chinese farmers now understand the efficient feed

conversion of poultry production, and are diverting more feed to it.

Manufactured feed output will keep growing and provide for the continuous expansion of the poultry and egg subsector. Milk output should increase about 10 percent, less than the 15-percent average of the last several years. The World Food Program

(WFP), which has helped six large Chinese cities to increase city milk supplies, will expire in 1988. Reportedly, the European Economic Community (EEC) sent a delegation to China to investigate the WFP project and decided to take over the responsibility for the dairy program after 1988. China's milk output, therefore, may keep up its relatively fast growth for the rest of the decade.

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CHINA'S CONSUMERS

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Abstract: Household income and expenditure surveys conducted by the State Statistical Bureau for selected years provide important economic and social data to China's government officials. Data from these surveys has also provided important information about China's consumers. Consumption expenditures for all consumers rose slowly from 1952 to 1978, but increased sharply from 1978 through 1985 during the period of economic reforms. As incomes have risen, both urban and rural consumers have spent a decreasing portion of their budgets on food, and increased the portion spent on clothes, rent, cultural and, educational goods, and services.

In the reform period, the total quantity of grain consumed by urban and rural consumers remained steady, but they both reduced the quantity of potatoes and coarse grains consumed and increased the quantity of wheat and rice eaten. Per capita consumption of edible oil and meat increased. Cotton cloth use fell in rural areas, but increased in urban areas. The consumption of chemical fiber cloth increased rapidly in both areas in 1978-85.

Urban living standards are more than 100 percent higher than rural. The gap between the two narrowed during the reforms, but in 1985 urban per capita consumption far outstripped that in rural areas. On a regional basis consumers in northeast China are most well off and consumers in the northwest and southwest regions were the poorest. While rural consumers have purchased an increasing amount of goods in markets, still 40 percent of all rural goods consumed in 1985 were provided by the farmers themselves.

Keywords: Consumption expenditures, income, per capita consumption, living standards.

Family Budget Surveys

Information in this article rests on data published by the State Statistical Bureau (SSB) which was founded in 1952. After 6 years of efforts to establish a national statistical system, statistical work was politicized during the Great Leap Forward (1958-61), and the bureau was disbanded during the Cultural

Revolution (1966-76). The SSB was reestablished in the mid-1970's and began publishing data in the early 1980's.

The primary source of consumption expenditure data comes from household income and expenditure surveys conducted by the SSB.

Table 7--Urban and rural household surveys, 1955-85

Selected years	Number of households surveyed	
	Urban	Rural
1955	--	16,468
1957	5,350	17,378
1964	3,537	--
1978	--	6,098
1979	--	10,286
1980	--	15,914
1981	8,715	18,529
1982	9,020	22,775
1983	9,060	30,427
1984	12,500	31,375
1985	17,143	66,642

Source: China Stat Yearbook, 1986, p. 667, 673. China Stat Yearbook, 1983, p. 499 for 1979. The Rural Economic and Social Statistics of China, p. 93. SSB, "Briefing on Income and Expenditure Surveys for Rural Households," Beijing, October 11, 1980.

Consumption Expenditures for Non-agricultural (Urban) Population

Family budget surveys of workers and employees provide data for consumption expenditures for the non-agricultural or largely urban population. These surveys were begun in the early 1950's by administrative units and industries. The quality of survey data improved in 1956-57 when a nationwide unified survey system was organized. Families selected in the sample were those which included workers in state-owned or-managed enterprises, and engineering, technical, teaching, and administrative personnel of government and public organizations. Statistical workers and administrative officials in the various provinces and cities used different sampling techniques. Some used the technique of proportional stratified sampling with systematic sampling inside strata. Others used systematic sampling, but constructed the sample on the basis of composition of the labor force, degree of wage differentials, and the scale of production within the administrative unit. Others used a model selection process.

Data collected in these surveys include demographic, labor, and education information. Enumerators noted both wage and nonwage incomes of families. Family spending was separated into commodity and noncommodity expenditures. Expenditures on

two broad categories of commodities were listed. Expenditures on food in terms of money (yuan) and kind were enumerated, such as fine grains (wheat and rice), coarse grains (corn, sorghum, millet, barley, and oats), potatoes, meat, poultry, fish, and vegetables. Expenditures in terms of money and kind were enumerated for clothes, food, daily necessities, and recreational supplies. Also, year-end stocks of major items such as radios and bicycles were enumerated.

Consumption Expenditures For the Agricultural Population

Data from budget surveys of agricultural families provide the basis for analyzing rural consumption expenditures. The first rural survey was conducted by the SSB in 1955 for 1954 income and expenditures. Surveys were conducted from 1955 through 1966, with as many as 18,000 households sampled by over 1,000 interviewers. The surveys were abandoned during the Cultural Revolution, but were reinstated in 1976.

The SSB has overall direction for the surveys, prints the survey forms, and trains the survey personnel. Data on crop and livestock output is collected along with information on household income from various sources. Many different kinds of family expenditure data are collected. Expenditures for production, including those for family

sideline production and taxes, are recorded. The survey also covers family expenditures for fixed assets, and money expenditures by families for people living outside the household (i.e., students). Family living consumption expenditures are divided into expenditures for commodities and services. Data is collected on the quantity of 22 major agricultural commodities consumed. An inventory of durable goods, such as bicycles and electric fans, is also made.

Families surveyed are not randomly selected. All units to be surveyed are listed in an ascending order with respect to the previous year's per capita income. Using cumulative population data and the number of samples, the sampling interval can be calculated, and the samples can be chosen by applying the equal sampling intervals. The sampling procedures follow four steps: first, 20 to 25 percent of the total number of counties in each province are selected; second, three or four townships in each of the selected counties are chosen; third, an average village (production brigade) is chosen from the selected townships; and fourth, 10 households are chosen from the selected village.

A complete understanding of China's consumers is not possible because of the lack of data and gaps in observations. We have relied most heavily upon survey data published when the SSB was operating in 1957, 1964, 1965, and 1978-85. The major exception to this rule is our use of consumption expenditure in yuan from 1952-1985.

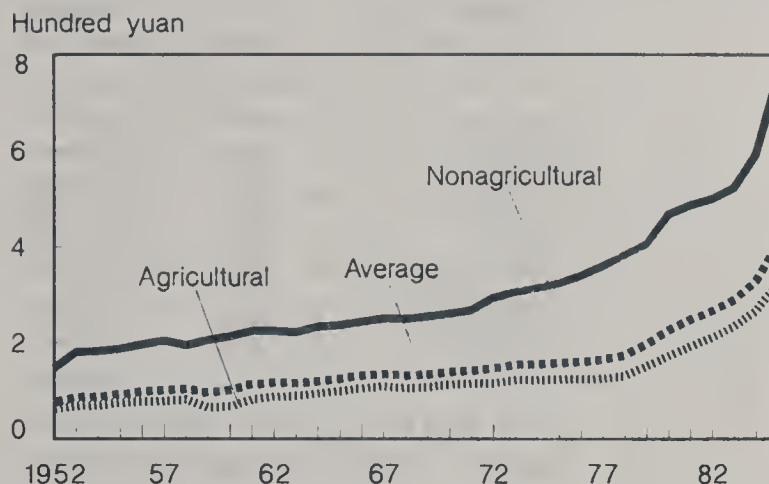
Per Capita Consumption Expenditures Rose

Per capita consumption expenditures for all consumers rose from 76 yuan in 1952 to 407 yuan in 1985. Expenditures rose at an annual rate of 3.25 percent from 1952 to 1978. The annual rate of increase jumped to 12.81 percent from 1978 to 1985, when economic reforms resulted in rapidly rising incomes. This expenditure data is based on current prices and does not take into account increases in prices, which by 1985 had risen 74 points from a base in 1950.

Non-agricultural consumers (primarily the urban population) generally have been from 2 to 3 times better off than the agricultural population. The ratio of consumption expenditures by the non-agricultural

Figure 10

Per Capita Consumption Expenditures, 1952-85



Source: China Stat Yearbook, 1986 p 646. The SSB has not discussed the data or estimates in the graph. The SSB was not functioning for many years in which data appears. The source of those data is not known.

population to expenditures by the agricultural population rose from 2.4 in 1952 to over 3.0 in 1959, when the rural population was struck particularly hard by famine during the Great Leap Forward (1958-61). From 1962 to 1985 the ratio was reduced gradually, especially after 1978 when reforms boosted rural incomes and raised living standards.

Non-agricultural per capita consumption expenditures rose from 148 yuan in 1952 to 383 yuan in 1978, an annual rate of 3.72 percent. During the reform period, expenditures rose at an annual average rate of 10.16 percent, from 383 yuan in 1978 to 754 in 1985, well below the increase for the agricultural population.

Consumption expenditures of the agricultural population rose very slowly from 62 yuan in 1952 to 324 in 1985. These expenditures decreased during the Great Leap Forward, indicating an absolute decline in living standards. By comparison, living standards in cities rose at this time. From 1952 to 1978 expenditures rose from 62 yuan to 132 yuan, at an annual average rate of 2.94 percent. Economic reforms initiated in 1978 greatly boosted income of the agricultural population, and consumption expenditures rose from 132 yuan in 1978 to 324 yuan in 1985, an annual rate of increase of 13.69 percent, well above that of the non-agricultural population.

While the increases for the agricultural population narrowed the gap between urban and rural areas, in 1985 the non-agricultural population was still 2.3 times better off than the agricultural population.

Table 8--Per capita consumption expenditures for all consumers:
the richest and poorest provinces in 1984

Upper third Province	Yuan	Middle third Province	Yuan	Lower third Province	Yuan
Shanghai	729	Hubei	386	Shanxi	308
Beijing	698	Qinghai	371	Shaanxi	297
Tianjin	622	Neimongol	370	Hebei	289
Liaoning	488	Zhejiang	365	Sichuan	288
Jilin	464	Xizang (Tibet)	359	Anhui	286
Heilongjiang	446	Shandong	338	Yunnan	270
Xinjiang	410	Fujian	337	Guangxi	265
Guangdong	408	Ningxia	322	Guizhou	258
Jiangsu	397	Hunan	311	Gansu	249
		Jiangxi	311	Henan	244

Source: China Stat Yearbook, 1986, p. 648.

Table 9--Per capita non-agricultural consumption expenditures:
the richest and poorest in 1984

Upper third Province	Yuan	Middle third Province	Yuan	Lower third Province	Yuan
Xizang	971	Heilongjiang	659	Shaanxi	558
Beijing	811	Hubei	648	Ningxia	558
Tianjin	776	Jilin	642	Neimongol	557
Shanghai	757	Henan	608	Anhui	557
Qinghai	755	Fujian	580	Guizhou	557
Guangdong	728	Shanxi	577	Sichuan	555
Liaoning	693	Zhejiang	574	Hebei	547
Jiangsu	669	Yunnan	568	Xinjiang	544
Gansu	689	Shandong	567	Guangxi	511
		Hunan	561	Jiangxi	448

Source: China Stat Yearbook, 1986, p. 648.

Consumption expenditures, which can be used to assess living standards, vary considerably among China's 29 provinces. The provinces vary greatly on the basis of area and population, and three of these administrative units, Beijing, Tianjin, and Shanghai, are essentially city states.

Consumers in the richest provinces are several times better off than in the poorest. Shanghai, Beijing, and Tianjin, however, are large cities and one would expect their expenditures to be higher than more agricultural provinces. The next richest province, Liaoning, has a large area with both agricultural and industrial populations, and its consumers are twice as well off as those in Henan.

Living standards among the non-agricultural population also vary. Non-ag consumers living in Beijing, Tianjin, and

Shanghai are almost twice as well off as those living in Jiangxi. Non-ag consumers in Xizang, Qinghai, and Gansu provinces are in the upper-third category partly because higher-than-average wages are paid to attract workers to these remote borderland areas. Provincial variation in living standards among the agricultural population is discussed in detail below (table 11).

How Consumers Spent Their Budgets

Peasant per capita expenditures rose from 136 yuan in 1978 to 357 yuan in 1984, an increase of 163 percent. In this period households spent nearly 13 percent of their budgets on taxes and production costs for sideline output. In 1978 households were forbidden to invest in fixed assets over which they had sole ownership. But after the commune system was demobilized and the

contract system established, investments in fixed assets rose to about 5 percent of total expenditures. Budget allocations to persons living away from families fell from 0.4 percent in 1978 to 0.2 percent in 1984. Money sent to relatives increased from 0.9 percent in 1978 to 3.4 percent in 1984. Other miscellaneous expenditures rose from zero in 1978 to 1.5 percent in 1984. Expenditures on consumer goods fell from 85.5 percent in 1978 to 76.7 percent in 1984.

A more detailed examination of personal consumption patterns in the period since reforms began reveals that expenditures for food as a percentage of personal consumption dropped nearly 10 percent. These consumers appear to be following the path well recognized in many countries where consumers spend a decreasing share of their budgets on

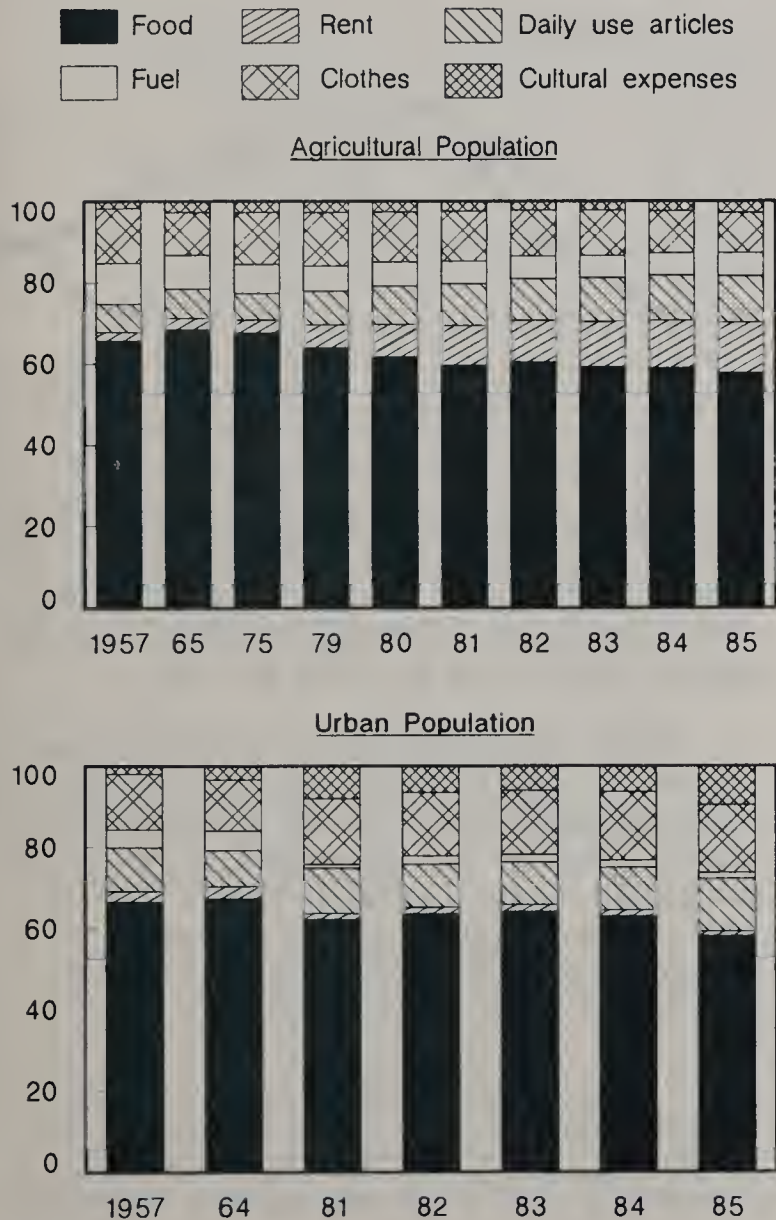
food as per capita incomes rise. It is interesting to note that the percent of budget that rural consumers allocated to food purchases did not fall below the 1957 rate until after the reforms were instituted in 1979. Rural consumers also allocated a declining share of their budgets for clothes and fuel. An increasing share of personal expenditures was spent on housing, which rose from a low of 2.1 percent in 1957 to 12.4 percent in 1985, and on daily-use items, which rose from 6.9 percent in 1957 to 11.4 percent in 1985. According to the sample survey data, expenditures on services and cultural activities have not changed greatly through the years.

Urban consumers allocated about 92 percent of their budgets to purchase commodities, and the remaining 8 percent was spent on services. The portion spent on commodity goods increased from around 85 percent in the 1950's and 1960's to 92 percent in the mid-1980's. Expenditures on food declined from a high of 67 percent of total expenditures in 1957 to 58 percent in 1985. From 1957 to 1985 expenditures on tobacco, alcoholic beverages, non-staple foods, and other food products rose, but expenditures on grains declined from 23 percent in 1957 to 9 percent in 1985. Urban consumers allocated 14 percent of their budgets to purchase clothes in 1957, but this rose to over 16.7 percent in 1985. The percentage of the budget spent on daily-use goods rose from 11 percent in 1957 to 13 percent in 1985. The share of budget spent on education and recreation goods increased rapidly, from 2 percent in 1964 to over 9 percent in 1985. Families allocated a declining share of their budgets for drugs, medical care, and fuel.

Urban consumers allocated a decreasing portion of their budgets for a variety of services. Budget allocations for rent decreased from 2.7 percent in 1957 to 1.1 percent in 1985. Government-subsidized housing enabled urban consumers to spend a decreasing amount of their budgets on rent. Expenditures for water, electricity, health care, school tuition, and transportation as a percent of total expenditures decreased from 1957 to 1985. Budget allocations for postage, telecommunications, and cultural and recreational fees remained fairly constant.

A comparison of urban and rural consumption in 1985 reveals that consumers in

Figure 11
Percent of Living Expenditures



both areas spent about 58 percent of their budgets on food, and expenditures on daily-use items constituted about 12 percent of their budgets. Rural consumers allocated more than 12 percent of their budgets to housing, compared with a little over 1 percent for urban consumers. This large difference results partially from rural household investment in new building construction being treated as a current expenditure, rather than as a long-term investment. Rural consumers also allocate more of their budget for fuel than urbanites, 5.7 percent to 1.5 percent. Urban consumers spend greater parts of their budgets for clothes (16.7 percent) and cultural activities (9.6 percent) than rural consumers, who spend 9.9 percent of their budgets for clothes and 2.9 percent for cultural activities.

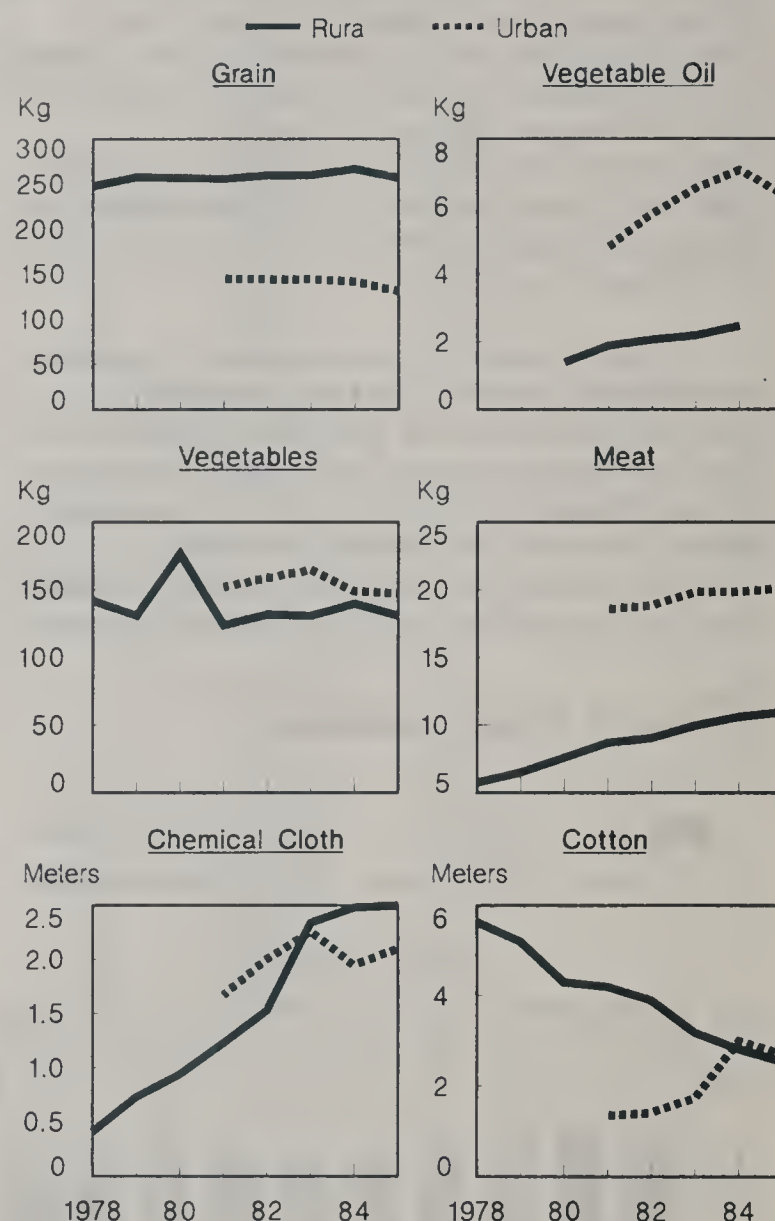
Per Capita Consumption Patterns

In the post-Mao period dramatic shifts occurred in rural and urban consumption patterns. Rising per capita incomes, greater specialization, improved marketing systems, and expanded freedom for enterprises to produce for markets all contributed to shifts in consumption patterns. Consumption data for rural areas covers 1978-85, but for urban areas we could only find data for 1981-85.

Per capita grain use in rural areas rose over 3 percent, from 248 kg in 1978 to 257 in 1985. These changes, represented by the graphs in figure 12, tell only part of the story, however. Rural consumers increased consumption of fine grain (wheat and rice) from 123 kg in 1978 to 201 kg in 1985, a 70-percent increase in 7 years. This indicates a strong consumer preference for these higher quality grains, and a shift away from coarse grain, (corn, sorghum, millet, barley, and oats), and potatoes.

Urban grain consumption fell 10 percent, from 145 kg in 1981 to 131 kg in 1985. Presumably some of the reduction was coarse grains and potatoes, so that urban consumers ate mostly wheat and rice. The rise in urban per capita meat consumption signifies a preference for coarse grains, which have been diverted into meat and away from direct consumption. Consumption of another grain-related product, alcoholic beverages, also increased dramatically.

Figure 12
Per Capita Consumption of Food and Cloth, 1985



Rural per capita consumption rose from 1.2 kg in 1978 to 4.4 kg in 1985, a 266-percent increase. Alcoholic-beverage consumption in urban areas also increased substantially, rising from 4.4 kg in 1981 to 8.0 kg in 1985.

China's rural and urban consumers have one of the lowest rates of per capita vegetable oil consumption in the world. Consumption levels, however, rose 90 percent, from 1.3 kg per capita for rural areas in 1978 to 2.47 kg in 1984. Urban consumption levels rose 33 percent in 5 years to 6.9 kg in 1985, still a very low level by world standards.

Rising incomes allowed rural consumers to spend some of their budgets for beef, mutton, and pork, and large increases in livestock output were supported by substantial

Table 10 -Consumption of major commodities in 1985

Item	unit	Rural	Urban	Urban/Rural
Grain				
Rough weight	kg	257.00	131.16	0.51
Fine grain	kg	209.00	NA	NA
Vegetable	kg	131.00	147.72	1.13
Edible oil	kg	4.04	NA	NA
Vegetable oil	kg	NA	6.36	NA
Meat, red	kg	10.97	20.16	1.84
Pork	kg	NA	17.16	NA
Beef and mutton	kg	NA	3.00	NA
Meat, poultry	kg	1.03	3.84	3.73
Eggs	kg	2.95	8.76	2.97
Seafood	kg	1.64	2.64	1.61
Sugar	kg	1.46	2.64	1.81
Alcoholic beverage	kg	4.37	8.04	1.84
Cigarettes	boxes	NA	38.16	NA
Cotton cloth	meters	2.54	2.71	1.07
Synthetic cloth	meters	2.50	2.10	0.84
Woolen fabric	meters	0.14	0.44	3.14
Silk and satin	meters	0.07	0.65	9.29
Shoes	pairs	0.55	0.65	1.18
Consumer durables, yearend stock per 100 households				
Bicycles		80.64	163.72	2.03
Sewing machines		43.21	73.19	1.69
Radios		54.19	80.80	1.49
Clocks:		163.64	NA	NA
Wrist watches		126.32	286.68	2.27
Television sets		11.74	93.33	7.95
Electric fans		NA	79.17	NA
Washing machines		NA	52.83	NA

NA = not available

Source: China Stat Yearbook, 1986, pp. 669, and 676

increases in grain output since 1978. Per capita red meat consumption increased 90 percent from 1978 to 1985. Urban consumption increased only 8 percent from 1981 to 1985. Poultry meat consumption in rural areas tripled from 0.3 kg in 1978 to 1.0 in 1985, while consumption in urban areas doubled from 1.9 in 1981 to 3.8 in 1985. Fresh egg consumption rose rapidly in rural areas from 0.8 kg in 1978 to 2.1 kg in 1985, an increase of 163 percent. Urban egg consumption rose from 5.2 kg in 1981 to 8.8 in 1983, a rise of 69 percent.

Dramatic changes have taken place in cloth consumption. Rural per capita cotton cloth consumption fell substantially, from 5.6 meters in 1978 to 2.5 meters in 1985, a decrease of 55 percent. Consumption of chemical fiber cloth increased sixfold, from 0.4 meters in 1978 to 2.4 meters in 1985. Consumption of woolen fabrics, silk and satin,

and knitted goods experienced similar growth patterns. Urban consumers, on the other hand, increased cotton cloth consumption. Per capita consumption of woollens, silk and satin, and knitted goods increased from 1981 to 1985 by well over 50 percent. Urban dwellers also began to purchase an increasing share of their clothes ready made, rather than buying cloth and sewing clothes. For example, ready-made chemical fiber clothes and silk and satin clothes doubled in the 5-year period.

Sugar consumption in rural areas rose from 0.73 kg per capita in 1978 to 1.46 kg in 1985, an increase of 100 percent. While consumption in rural areas increased, consumption in urban areas remained steady during the period at about 2.80 kg per person. These levels are very low in comparison with consumption standards of other countries. Cigarettes can also be considered a luxury good. Rural per capita consumption rose from

15.34 packs (1 pack has 20 cigarettes) in 1981 to 21.70 packs in 1984, an increase of 41 percent. Urban consumers in 1984 consumed 38 packs, a 6-percent increase from 1981.

Urban consumers have much higher living standards than those in rural areas. Data presented in figure 12 suggests that since rural reforms were instituted in 1978, the gap in living standards has been closed somewhat. Nonetheless, in 1985 urban dwellers had 133 percent more money to spend on consumption than their rural cousins. The difference between rural and urban living conditions is highlighted in table 10, which compares quantities of goods consumed and year-end inventories of durable goods. Except for two cases, grain and synthetic cloth, urban per capita consumption far outstrips that in rural areas.

Rural Per Capita Consumption: Regional Differences

Rural per capita consumption patterns differ greatly among China's 27 provinces. Farmers in suburban Shanghai are nearly three times better off than those in Gansu province. Consumption patterns for all consumers and for urban consumers were discussed above (tables 8 and 9). Whereas those data were limited to yuan consumption expenditures, the SSB has published a wealth of material on rural per capita commodity consumption as well. A ranking of China's richest and poorest provinces based on per capita consumption expenditures of the agricultural population is listed in table 11.

Provincial data was arranged on a regional basis so that differences in regional

consumption patterns could be examined. Regional figures were calculated from provincial data, which have been weighted by agricultural population data.

On the basis of per capita yuan consumption expenditures, rural residents in the northeast region are 40 percent better off than those living in the southwest region.

In the 1980-84 period rural per capita consumption of all grains expanded by 7 percent, while consumption of fine grains increased by 28 percent. The most rapid expansion occurred in the north, northeast, and northwest regions, where human consumption of coarse grains fell and consumption of wheat and rice increased substantially. Consumption of fine grains in predominantly rice-producing areas grew at a more modest pace (3 percent for the south, and 11 percent for the central region).

Rural per capita edible oil consumption is very low by world standards and on average is below urban consumption levels. We can see from table 12 that rural consumers in the central region consume twice as much as those in the southwest, north, and south regions. Consumers in Hunan have the country's highest rural consumption rate, 6.2 kgs/capita, compared with Henan at 2.5 kg/capita.

Per capita rural meat consumption is highest where per capita incomes are high and where rangeland abounds. Higher income provinces where rural consumers eat more meat than average include Shanghai, Hubei, and Zhejiang. Pastoral provinces such as Nei Mongol, Qinghai, Tibet, Yunnan, and Guizhou also have high meat consumption rates.

Table 11—Per capita consumption expenditures for agricultural population, 1984

Upper third		Middle third		Lower third	
Province	Yuan	Province	Yuan	Province	Yuan
Shanghai	682	Heilongjiang	310	Sichuan	246
Beijing	538	Shandong	307	Shaanxi	242
Tianjin	445	Xinjiang	295	Shanxi	239
Jilin	367	Fujian	290	Guangxi	233
Liaoning	354	Neimongol	289	Yunnan	228
Jiangsu	347	Jiangxi	279	Qinghai	227
Hubei	329	Hunan	274	Guizhou	218
Guangdong	326	Xizang	268	Henan	201
Zhejiang	324	Hebei	251	Gansu	173

Source: China Stat Yearbook, 1986, p. 648.

Table 12--Agricultural population's per capita consumption:
regional differences in 1984

Region	Consumption expenditures	Grain	Edible oil	Meat	Cotton
	Yuan	-----Kilograms-----			Meters
Northeast	342	279	5	11	3
East	319	301	4	10	2
Central	294	325	6	12	2
South	289	278	3	11	2
North	260	231	3	6	3
Northwest	242	246	4	9	3
Southwest	240	257	3	16	3

Source: China Stat Yearbook, 1986, pp.679-684

Table 13--Regional total and fine grain consumption, 1980 and 1984

Region	Total grain 1980	Total grain 1984	Fine grain 1980	Fine grain 1984
	-----Kilograms-----			
Northeast	268	279	57	92
East	294	301	246	280
Central	305	325	276	306
South	281	278	257	264
North	228	231	90	159
Northwest	226	246	103	149
Southwest	245	257	167	215

Source: China Stat Yearbook, 1986, pp.679-684

Consumers in provinces which have low per capita incomes, large populations, and limited arable land, such as Hebei, Henan, Shandong, and Anhui, tend to eat less meat. In the 1980-1984 period per capita meat consumption increased 50 to 100 percent in Zhejiang, Anhui, Hunan, Hubei, Guangdong, and Guangxi.

Rural consumers in the northeast region enjoy the country's highest level of per capita egg consumption at 3.7 kg/capita. This is over three times that in the south and southwest regions, which averaged 1 kg per capita. Consumers in rural Beijing led the country in egg consumption with 5.6 kg per capita, while consumers in Tibet had the lowest rate at 0.4 kg per capita. From 1980 to 1985 egg consumption in many provinces more than doubled.

Rural per capita seafood consumption varies greatly around the country. It is highest in the maritime provinces in the east

and south regions, and is lowest in the arid inland northwest and southwest regions. Rural consumers in Guangdong province led the nation in seafood consumption, 8.44 kgs per capita compared with consumers in Shanxi province who consumed only 0.01 kg per capita.

Vegetable consumption is highest in the northeast and central regions, 189 and 182 kg per capita, respectively, and lowest in the arid northwest, 79 kg per capita. Per capita consumption in the other regions is around 120 kg. We are at a loss to explain why farmers in the short-growing-season northeast region have higher consumption rates than in south China, where vegetables can be grown year-round.

Where are China's sweet teeth? Survey data clearly point to the south region, which is China's largest producer of raw sugar. There, rural Guangdong residents on the average consumed 2.87 kg per capita in 1985. Rural

consumers in the east region were the second largest consumers at 2.6 kg per capita. Rural consumers in the central, southwest, and north region consumed just over 1 kg per capita. Relatively poor consumers in the northwest region consumed an average of only 0.8 kg per capita, and consumers in the northeast region, the most wealthy in the country, consumed the least sugar (0.6 kg per capita).

Rural per capita tobacco consumption is closely related to income. Consumers in the east region have the highest rate, at 37.9 packs per capita, which is three times the 11.9 in the poor southwest region.

Rural consumption of alcoholic beverages is highest in the east region, where consumers in Zhejiang province drank over 17 kg per capita in 1985. Consumers in the south, central, northeast, and southwest regions averaged over 4 kg per capita in 1985. Relatively poor consumers in the north and northwest regions consumed less than 3 kg per capita. Shanxi consumers, for example, drank only a little over 1 kg per capita in 1985.

The basic regional features of cotton cloth consumption are laid out in table 12. Per capita consumption is greater in the cold north than in the moist, hot south. From 1980 to 1985 cotton cloth consumption declined in all provinces. In 1985 rural consumers in Shanxi province had the highest per capita consumption of 4.9 meters, compared with 1.1 meters in Guangdong.

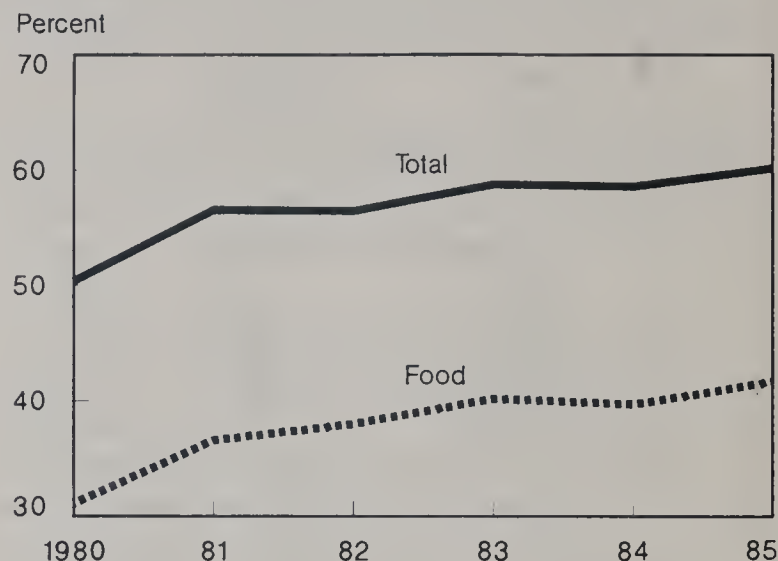
By 1985 the richer regions in the country consumed more chemical fiber cloth than cotton cloth. For example, in 1985 rural consumers in the east region consumed 3.4 meters of chemical fiber cloth, compared with 2.4 meters of cotton cloth. Conversely, consumers in poorer regions consumed more cotton cloth than chemical fiber cloth. For example, in the southwest region rural consumers consumed only 1.6 meters of chemical fiber cloth, compared with 2.9 meters of cotton cloth.

Rural Consumers Increase Their Use of Markets

In the reform period from 1978 through 1985 rural consumers purchased an increasing amount of goods in markets. Of total goods consumed by the agricultural population, the

Figure 13

Percent of Goods Purchased in Markets



portion purchased in markets rose from 50 percent in 1978 to 60 percent in 1985. While this increase is significant, it is well to remember that some 40 percent of the goods consumed in 1985 still were being provided by the agricultural population themselves.

In the 1978-85 period the agricultural population bought more food from markets. Consumers shifted their source of supply, from a 31-percent reliance in 1978 to 41 percent in 1985. By 1985, however, a large share of food in rural areas was being raised by farmers themselves. Farm households, regardless of specialization, often prefer to reserve a plot of land to raise their own grain ration, even though they could maximize income by raising other crops. Traditional autarky continues to manifest itself in rural China, because rural families still doubt the ability of socialist institutions and markets to provide dependable supplies of food grains.

In 1985 the agricultural population purchased less fuel in markets than in 1978. In 1978 markets supplied 40 percent of the fuel. By 1985 this dropped to 22 percent, as agricultural households relied more on their own resources.

The agricultural population in 1985 relied heavily on markets to supply clothes and other goods. Consumers from 1978 to 1985 purchased even more clothes in markets, so that the market share of total clothes consumed rose from 89 percent in 1978 to 98 percent in 1985.

A NOTE ON CHINA'S FOOD PROCESSING INDUSTRY: Recent Development and Future Prospects

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Abstract: China's successful agricultural production, beginning in the late 1970's, and rapid growth in income in both rural and urban areas, have expanded the food tastes of the Chinese people. The changes in preference have resulted in increasing development of the country's food processing industry during the Sixth Five-Year Plan period (1981-85). Furthermore, the Government expects the industry to continue its rapid growth through the end of this decade. However, because of China's inexperience in production, marketing, and planning, and its urgent need for advanced technology in processing and packing, foreign countries, including the United States, will have a chance to help the country's food processing in coming years. China, at the same time, is expected to develop quality processed output to compete on the international market in order to earn foreign exchange.

Keywords: Food processing, growth rates, output level, output targets, trade.

Nowadays, China's consumers are no longer content with just eating rice, steamed buns, soup, fatty meat, and vegetables. Their tastes have expanded significantly because of China's successful crop production and sharp increases in income. The expanded tastes have been an impetus for the notable development of the food processing industry over the past 6 years.

Rapid Growth During 1981-85

During the Sixth Five-Year Plan period (1981-85), China's food processing industry

made remarkable progress, with total output value reaching 95.17 billion yuan at the end of 1985. The 1985 value was up 55.5 percent from 1980. The food processing industry's output showed an average annual increase of 9.2 percent for the plan period, surpassing the 8-percent target set by the Government. Some major outputs, such as canned meat and beer, grew 200 to 300 percent over the 5-year period (table 14).

In 1985, all major products except salt registered various degrees of output increase. Production of sugar was a record in 1985, and

Table 14--Selected outputs of China's food processing industry

Commodities	Unit	1980	1984	1985
Edible vegetable oil	1,000 tons	2,215.4	3,815.8	4,005.2
Salt	do.	17,282.0	16,420.0	14,790.0
Sugar	do.	2,570.6	3,799.0	4,510.0
Cigarettes	1,000 cases	15,200.2	21,320.0	23,700.0
Canned food	1,000 tons	571.6	1,090.0	1,425.0
Meat	do.	74.4	186.8	249.5
Poultry	do.	4.5	23.3	18.6
Aquatic products	do.	28.7	58.2	48.9
Fruits	do.	248.5	427.1	631.0
Vegetables	do.	493.1	348.2	390.8
Alcohol	do.	493.1	727.4	833.0
Wines	do.	3,684.8	7,110.0	8,510.0
White	do.	2,152.8	3,170.0	3,380.0
Beer	do.	687.8	2,240.0	3,100.0
Grape	do.	77.9	160.0	230.0
Dairy products	do.	63.2	130.2	163.6
MSG	Tons	27,683.0	73,370.0	82,775.0

Sources: China Econ Yearbook 1986, p. VI-26

China became the fifth largest sugar-producing country in the world. China's food processing industry also introduced a number of new products by the end of 1985, including potato chips, fruit juice, soybean milk, cola drinks, infant milk powder, and ice cream bars. By the end of 1985, the oilseed processing industry also made significant improvements in refining edible oil, with a production capacity of 4.98 million tons, 1.5 times that of 1980. Livestock feed manufacturing also advanced, and 1985 output exceeded 15 million tons, a 25-percent increase over the preceding year.

The latest available information indicates that the first half of 1986 saw an 8.4-percent increase in the industry's output value over the same period in 1985. The total output value for 1986 is estimated to show a 10-percent increase from 1985. In addition, development of China's food processing industry has allowed the country to enter the international market; for example in canned food, wines, and beers.

Programs for 1986-90

China's food processing industry is expected to grow more than 9 percent annually in the Seventh Five-Year Plan period (1986-1990). The industry will concentrate on more nutritious and higher quality foodstuffs in the next 4 years to meet varied tastes and earn more foreign exchange. The growth will be largely determined by consumer demand and by domestic agricultural production. The Government's major areas and production targets are as follows:

- o Food grains, oilseed crops, and meat processing: Processed food, including oilseed crops, has accounted for 32 percent of total food consumption. The goals for the next 5 years are to increase quantity as well as quality of food processing, particularly of soybeans, corn, potatoes, and meat, in addition to providing consumers with higher quality flour and edible oil.
- o Sugar processing: Sugar production will concentrate on sugarcane and sugarbeets. Output of sugar is targeted at more than 6 million tons by 1990, an increase of about 1 million from 1985.

- o Fast-food output: The rapidly growing fast-food industry will keep making progress during the Seventh Five-Year Plan period. The focus is on meeting the growing needs of tourists, migrant workers, and working-parent families. The output of instant noodles is expected to rise to 400,000 tons by 1990 from 50,000 tons in 1985. Instant rice and rice noodles will reach 300,000 tons.
- o Dairy product industry: The 1990 dairy product output will reach 250,000-300,000 tons, roughly double the 1985 output.
- o Wine and brewery: The target for total wine output will be 12.5 million tons, with white wine at 3 million. Beer output will reach 6.5 million tons, from the current level of 3 million.
- o Soft drinks: The focus on soft drinks will be to develop more tastes and to improve packing and canning. The output of all soft drinks is expected to increase to 3 million tons, triple the output in 1985.

The Government expects the food processing industry to earn \$1.27 billion in foreign exchange in 1990, compared with only \$500 million in 1985. Canned goods, together with beer and wine, are expected to lead the increase. The revamping of 130 export-oriented canned food factories in coming years is considered as the key to nearly tripling canned food exports by 1990 to a projected 1 million tons. Exports of canned mushrooms and asparagus are expected to gain significantly.

Expanding exports of beer, wine, and hard liquors such as maotai also are expected, with beer exports having the greatest potential. China could export 100,000 tons of beer annually, but exports were only 45,000 tons in 1985.

Other areas that could be expanded include citric acid and flavoring products, and snack food such as chocolates, sweets, and biscuits.

Problems and Implications

Despite recent rapid gains and ambitious output and export targets set for the current

Five-Year Plan, China's food-processing industry faces many problems. Among them:

- (1) The lack of production and market planning, in particular, has led to fierce competition in obtaining raw materials and in domestic sales. Production capacity in some areas therefore was not fully utilized.
- (2) The Government's relaxation of agricultural commodity prices has allowed sharp increases in prices of raw materials, including vegetables, fruits, aquatic products, and meat. It also caused rises in costs of production, especially in the canned food processing industry.
- (3) Shortages of packing material such as glass bottles added to an already congested interprovincial transportation system.
- (4) Rapidly growing domestic demand in domestic markets has limited foreign-exchange sales of many products.

- (5) There is a need of quality grading and strict sanitary inspection during manufacturing and processing in order to reduce consumers' complaints about output quality.

Finally, based on the industry's growth and expected development in coming years, together with its problems, the implications are:

- o China will need foreign countries' experience in developing its food processing industry, particularly the fast-food industry. For instance, chain store management, production, and marketing strategies will be needed.
- o The Chinese Government will seek advanced technology and specialized equipment needed in modern food processing and packing.
- o China is expected to vigorously develop and produce products such as beer and canned food in order to compete in the international market and earn more foreign exchange.

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Table 15--Grain area, yield, and production 1/

Grain	1982	1983	1984	1985	1986
Million hectares					
Sown area					
Wheat	27.96	29.05	29.58	29.22	29.70
Rice	33.07	33.14	33.18	32.07	32.28
Coarse grains	29.88	30.12	29.19	26.99	27.92
Corn	18.54	18.82	18.54	17.69	19.17
Sorghum	2.78	2.71	2.45	1.94	1.87
Millet	4.04	4.09	3.80	3.32	2.98
Barley	3.85	3.85	3.77	3.45	3.33
Oats	0.66	0.66	0.64	0.59	0.57
Potatoes	9.37	9.40	8.99	8.72	8.70
Others 2/	13.19	12.33	11.95	11.99	12.27
Total 3/	113.46	114.05	112.88	108.85	110.87
Tons/hectare					
Yield 4/					
Wheat	2.45	2.80	2.97	2.94	3.04
Rice	4.89	5.10	5.37	5.27	5.30
Coarse grains	2.74	3.04	3.30	3.05	3.10
Corn	3.27	3.62	3.96	3.61	3.60
Sorghum	2.51	3.09	3.15	2.90	2.89
Millet	1.63	1.85	1.85	1.80	1.81
Barley	1.81	1.77	1.94	1.81	1.83
Oats	1.12	1.10	1.22	1.12	1.18
Potatoes	2.89	3.11	3.17	2.98	3.10
Others 2/	1.18	1.31	1.38	1.34	1.32
Total 3/	3.12	3.40	3.61	3.48	3.53
Million tons					
Production					
Wheat	68.47	81.39	87.82	85.81	90.30
Rice	161.60	168.87	178.26	168.57	171.13
Coarse grains	81.82	91.63	96.22	82.33	86.57
Corn	60.56	68.21	73.41	63.83	69.00
Sorghum	6.97	8.36	7.72	5.61	5.40
Millet	6.58	7.54	7.03	5.98	5.40
Barley	6.97	6.80	7.30	6.25	6.10
Oats	0.74	0.72	0.78	0.66	0.67
Potatoes 5/	27.05	29.25	28.48	26.04	26.96
Others 2/	15.57	16.15	16.54	16.07	16.13
Total 3/	354.50	387.28	407.31	379.11	391.09

1/ Data presented here are official figures released by the SSB or the Ministry of Agriculture, except for (1) 1986 area, (2) 1986 total and individual coarse grain production, and (3) 1982-86 barley and oat, and other grain area and production. 2/ Consists of soybeans, pulses, and other miscellaneous grains. All of these items are included in China's definition of total grains. 3/ PRC definition. 4/ Calculated from area and production figures. 5/ Converted to a grain-equivalent weight using a 5:1 conversion ratio.

Sources: China Ag Yearbook, 1982, 1983, 1984, 1985 and 1986; China Stat Yearbook, 1983, 1984, 1985, and 1986; and the 1986 SSB Communique.

Table 16 --Oilseeds and cotton area, yield, and production

Item	1982	1983	1984	1985	1986 1/
1,000 hectares					
Sown area					
Cotton	5,829	6,077	6,920	5,140	4,399
Oilseeds, USDA 2/	21,594	20,329	21,056	22,142	21,957
Soybeans	8,419	7,567	7,286	7,716	8,238
Oilseeds, PRC 3/	9,343	8,390	8,678	11,800	11,533
Peanuts	2,416	2,201	2,421	3,318	3,332
Rapeseed	4,122	3,669	3,413	4,494	4,937
Sesameseed	965	789	858	1,052	1,014
Sunflowerseed	814	733	1,013	1,474	1,050
Other oilseeds 4/	1,026	998	973	1,462	1,200
Kg/hectare					
Yield					
Cotton	617	763	900	807	805
Oilseeds, USDA 2/	1,254	1,356	1,542	1,426	1,404
Cottonseed	1,235	1,546	1,537	1,373	1,368
Soybeans	1,073	1,290	1,331	1,362	1,402
Oilseeds, PRC 3/	1,265	1,257	1,408	1,338	1,277
Peanuts	1,621	1,795	1,989	2,008	1,765
Rapeseed	1,372	1,168	1,232	1,248	1,189
Sesameseed	354	442	555	657	608
Sunflowerseed	1,580	1,828	1,682	1,175	1,429
Other oilseeds 4/	601	624	730	746	721
1,000 tons					
Production					
Cotton 5/	3,598	4,637	6,077	4,150	3,540
Cotton (1,000 bales) 5/	16,500	21,300	27,900	19,060	16,259
Oilseeds, USDA 2/	27,084	28,642	31,064	31,567	30,819
Cottonseed	7,196	9,274	10,640	7,055	6,020
Soybeans	9,030	9,760	9,700	10,509	11,547
Oilseeds, PRC 3/	11,817	10,550	11,910	15,784	14,725
Peanuts	3,916	3,951	4,815	6,664	5,881
Rapeseed	5,656	4,287	4,205	5,607	5,871
Sesameseed	342	349	476	691	608
Sunflowerseeds	1,286	1,340	1,704	1,732	1,500
Other oilseeds 4/	617	623	710	1,090	865
Available oil 6/	4,422	4,247	3,552	4,145	4,007
Available meal 6/	9,715	9,731	8,397	7,945	7,269

1/ All 1986 figures are USDA estimates except for output of cotton, soybeans, oilseeds (PRC), peanuts, rapeseed, and sesameseed. 2/ Oilseed data published by USDA include only soybeans, cottonseed, peanuts, rapeseed, and sunflowerseed; area includes cotton. 3/ China's total oilseed data exclude soybeans and cottonseed. 4/ "Other oilseeds" are calculated as a residual and include mainly huma (an edible oil-bearing flaxseed) and castor bean; oil-bearing tree seeds are excluded. 5/ Cotton production is on a ginned-weight basis. Bales are 480 pounds. 6/ Available oil and meal are estimated for the marketing year following harvest by applying assumed crush and extraction rates to production plus net imports of soybeans, soybean oil, and soybean meal. Other edible oils from grain crops and oil-bearing tree seeds are included in available oil.

Source: China Stat Yearbook, 1983, 1984, 1985, and 1986; China Ag Yearbook, 1982, 1983, 1984, 1985, and 1986; and the 1986 SSB Communiqué.

Table 17--Tropical and subtropical crops, 1985

Crops	Unit	National total	Guangdong	Guangxi	Yunnan	Fujian
Rubber						
Total area	Ha.	514,333	401,867	13,200	91,400	7,867
Area tapped	Ha.	256,200	215,867	8,733	28,467	3,133
Output (dry rubber)	Tons	187,901	153,650	2,303	30,984	964
Coffee						
Total area	Ha.	3,066	2,067	0	1,000	0
Area harvested	Ha.	1,267	600	0	667	0
Output	Tons	688	208	0	480	0
Coconuts						
Total area	Ha.	16,733	16,733	0	--	0
Area harvested	Ha.	8,533	8,533	0	--	0
Output	1,000 pieces	45,880	45,810	0	70	0
Oil palm						
Total area	Ha.	3,467	3,467	0	0	0
Area harvested	Ha.	467	467	0	0	0
Output (kernels)	Tons	1,626	1,626	0	0	0
Cashew Nut						
Total area	Ha.	10,733	10,733	0	0	0
Area harvested	Ha.	5,533	5,533	0	0	0
Output	Tons	508	501	0	7	0
Pepper						
Total area	Ha.	6,933	6,733	--	200	--
Area harvested	Ha.	4,267	4,133	--	133	--
Output	Tons	4,030	3,933	1	86	10
Sisal hemp						
Total area	Ha.	13,533	7,200	4,067	--	2,267
Area harvested	Ha.	11,333	6,267	3,667	--	1,400
Output (fiber)	Tons	22,087	13,315	6,247	97	2,428
Citronella grass						
Total area	Ha.	9,067	7,933	267	670	200
Area harvested	Ha.	8,067	7,267	200	467	133
Output (oil)	Tons	965	883	17	43	22

-- = Negligible.

Source: China Ag Yearbook 1986, p. 199.

Table 18--Livestock yearend inventories and livestock product output

Item	1982	1983	1984	1985	1986 1/
Million head					
Yearend inventory					
Hogs	300.78	298.54	306.79	331.40	336.93
Large animals	101.13	103.50	108.39	113.82	118.91
Draft animals	58.33	61.25	64.03	66.46	67.50
Cattle	76.07	78.08	82.13	86.82	91.66
Dairy cows	0.82	0.95	1.34	1.63	1.80
Water buffalos	19.14	19.15	19.51	19.93	20.30
Horses	10.98	10.81	10.98	11.08	11.15
Mules	9.00	9.45	9.96	10.41	10.65
Donkeys	4.46	4.59	4.79	4.97	5.10
Camels	0.61	0.56	0.53	0.53	0.53
Sheep	106.57	98.92	95.19	94.21	99.75
Goats	75.22	68.04	63.21	61.67	66.08
Poultry	NA	NA	1,669.63	1,978.91	2,200.00
Million head					
Number slaughtered					
Hogs	200.63	206.61	220.47	238.75	256.92
Cattle	3.10	3.47	3.87	4.57	5.50
Sheep & goats	48.74	49.24	50.81	50.81	51.98
Percent					
Slaughter rate					
Hogs	68.3	68.7	73.8	77.8	77.5
Cattle	4.2	4.6	4.7	5.6	6.3
Sheep & goats	26.0	27.1	30.4	32.1	33.3
1,000 tons					
Production					
Meat	13,508	14,021	15,406	17,607	19,183
Pork	12,718	13,161	14,447	16,547	17,968
Beef	266	315	373	467	586
Mutton	524	545	586	593	629
Poultry meat	NA	NA	1,375	1,602	1,800
Cow's milk	1,618	1,845	2,186	2,499	2,860
Sheep and goat milk	341	374	410	395	580
Sheep's wool	202	194	183	178	183
Mohair	13	11	11	11	12
Cashmere	4	4	3	3	4
Eggs	2,809	3,323	4,316	5,347	5,730

1/ All 1986 data are ERS estimates except for inventory of hogs, large animals, hogs slaughtered, hog slaughter rate, production of meat, and cow's milk.

Sources: China Ag Yearbooks, 1983, 1984, 1985, and 1986, and the 1986 SSB Communique.

Table 19 -Labor force in rural areas

Items	1978	1980	1981	1982	1983	1984	1985	1986
	1000 labor force units							
Labor force in rural areas								
Labor force in townships	313,485	325,059	333,432	345,333	353,571	366,238	370,651	379,900
Labor force in Agr. forestry, animal husbandry, sideline prod. and fishery	303,678	318,359	326,723	338,665	346,898	359,676	NA	NA
	283,945	298,793	307,146	311,857	316,451	316,850	303,515	304,680
Labor force in crop farming	256,775	266,726	276,776	281,555	282,836	254,969	249,420	253,660
Labor force in forestry	3,002	3,152	2,548	2,743	3,157	3,414	NA	NA
Labor force in animal husbandry	6,432	7,481	6,535	6,502	7,944	20,710	NA	NA
Labor force in sideline production	17,123	19,842	19,784	19,499	20,918	35,277	NA	51,020
of which: In village industry	9,062	11,006	10,682	11,233	11,440	13,878	NA	NA
Labor force in fishery	613	1,592	1,503	1,558	1,596	2,480	NA	NA
Labor force in township (Commune) industry	8,278	8,416	9,125	9,495	873	10,336	NA	31,400
Labor force in construction	2,298	2,830	2,973	3,789	4,825	8,114	11,301	13,090
Labor force in transportation	796	900	1,013	1,147	1,609	3,164	4,341	5,060
posts and telecommunication								
Labor force in Commerce	643	1,114	1,209	1,304	2,062	4,217	4,626	5,320
catering and service trade								
Of which, labor in service trade	123	446	457	474	694	1,223	1,003	NA
Management of fixed assets public service	NA	NA	NA	NA	NA	NA	887	NA
Finance insurance	4,841	4,425	3,202	3,579	3,760	3,987	116	NA
Labor force in culture, education, health and social welfare	NA	NA	NA	NA	NA	NA	4,325	NA
Health recreation welfare	NA	NA	NA	NA	NA	NA	1,224	5,950
Education cultural broadcasting	NA	80	163	136	117	120	3,101	
Persons in scientific researches	368	370	359	339	554	739	809	
Persons in administration	1,901	1,210	1,322	2,847	4,320	6,000	NA	
Temporary (contract) workers	3,308	221	211	4,170	4,470	6,149	13,191	14,410
Others	NA	144,562	148,328	153,491	157,433	163,043	169,119	NA
Women labor force in townships (communes)								
Average labor force in each township (communes) (person)	58,050	58,760	60,090	62,310	61,580	39,340	NA	NA
Average labor force in each village (brigade) (person)	4,440	4,490	4,550	4,710	4,620	3,850	NA	NA
Staff and workers on state farms of Agr., forestry, animal husbandry	7,107	6,700	6,709	6,668	6,673	6,562	NA	NA
Proportion to pop. in townships	38.14	39.26	39.90	40.90	41.53	42.67	NA	NA
As % of labor force in townships (communes)	NA	45.41	45.40	45.32	45.38	45.33	NA	NA

NA = not available

SOURCE: The Rural Economic and Social Statistics of China, p. 109

1985: China Stat Yearbook, 1986, p. 147; BR, No. 22, June 1, 1987, p. 23.

Table 20--Major manufactured farm inputs

	Unit	1982	1983	1984	1985	1986
Yearend stocks						
Large-medium tractors	1,000	812	841	854	864	871
Hand tractors	"	2,287	2,750	3,289	3,810	4,700
Rural trucks	1,000	206	275	349	430	494
Power irrig. & drain. equip.	1,000 hp.	76,697	78,492	78,821	78,500	--
Machinery production						
Large-medium tractors	1,000	40	37	40	45	34
Hand tractors	"	298	498	689	--	--
Internal combustion engines	1,000 hp.	22,960	28,990	4,702	--	--
Rural electric consumption 1/	Mil. kWh.	39,690	43,520	46,200	50,925	57,800
Fertilizer output 2/	1,000 tons	12,781	13,789	14,602	13,222	--
Nitrogen	"	10,219	11,094	12,210	11,438	--
Phosphate	"	2,537	2,666	2,360	1,760	--
Potassium	"	25	29	(32)	(24)	--
Fertilizer applied 2/	1,000 tons	15,134	16,598	17,731	17,760	19,520
Chemical pesticides	"	457	331	310	211	223

() Indicates derived.

1/ Not all for agricultural production. 2/ All figures in effective nutrient weight.

Sources: Various annual SSB Communiques; China Stat Yearbook, 1986, p. 302.

Table 21--Trade in grain, by country 1/

Item	Calendar year			July June year		
	1984	1985	1986 2/	1984/85 3/	1985/86 3/	1986/87 3/
1,000 tons						
IMPORTS:						
Total grain	9,742	5,713	6,807	7,500	7,300	4/10,200
:of which						
Argentina	1	875	393	673	596	916
Australia	2,400	1,261	3,023	1,491	2,785	3,143
Canada	3,213	2,370	2,688	2,738	2,823	2,747
EC	27	324	115	82	252	452
Thailand 5/	34	67	497	98	280	452
United States 6/	4,067	816	91	2,392	542	7/1,174
Wheat	9,608	5,599	5,745	7,400	6,600	7,500
:of which						
Argentina	1	875	363	673	566	813
Australia	2,325	1,214	2,923	1,451	2,704	2,984
Canada	3,187	2,370	2,310	2,738	2,587	2,604
EC	27	324	115	82	252	617
United States 6/	4,067	816	34	2,392	542	7/91
Coarse grain	134	137	1,062	100	700	2,700
:of which						
Argentina	0	5	30	0	30	103
Australia	75	65	100	40	81	159
Canada	26	0	378	0	236	143
EC	0	0	0	0	0	0
Thailand	34	67	497	98	350	318
United States 6/	0	0	57	0	0	7/1,083
EXPORTS						
Rice 9/	1,010	1000	950	NA	NA	NA
Coarse grain	1,507	6,340	5,640	8/6,000	7,100	4,300
Hong Kong	200	190	60	200	200	50
Japan	252	2,578	2,689	2,100	2,766	2,200
South Korea	455	1,062	945	1,770	827	600
Soviet Union 10/	400	1,200	1,200	1,000	1,200	1,200
Others 10/	200	310	746	530	2,070	250

NA = Not available.

1/ Totals for individual commodities are official USDA estimates or forecasts. Quantity data for the the major trading partners comes from official partner-country trade statistics and may not sum to totals. 2/ Preliminary. 3/ USDA forecasts as of June 1987. The total grain forecast is a mixed year total--wheat July/June and coarse grain October/September. 4/ Current USDA forecast. Country data is for shipments through April and May 1987. 5/ Includes rice imports. 6/ Direct exports plus transshipments through Canada. 7/ The U.S. number represents outstanding sales and shipments as of June 1987. 8/ October/September. 9/ Milled basis. China exports rice primarily to Asian and Eastern European nations and Cuba. 10/ Estimated.

Sources: Official partner-country trade statistics.

Table 22 --Trade in other agricultural commodities, by country

Item	Calendar year			Marketing year		
	1984	1985	1986 1/	1984/85	1985/86	1986/87 1/
1,000 tons						
IMPORTS:						
Cotton				22	22	11
Soybeans	0	51	330	0	250	330
Soybean oil	10	21	100	21	105	200
Oilseeds 2/	1.7	1.1	2.6			
Oils 2/	14.4	34.8	198.0			
Sugar 4/	1,348	2,180	1,182			
Australia	262	452	394			
Brazil	0	0	0			
Cuba	705	680	307			
Philippines	68	80	40			
Thailand	278	911	307			
Others	35	57	134			
EXPORTS:						
Cotton				234.4	435.4	500.8
Hong Kong				88.0	108.8	130.6
Indonesia				16.9	16.3	38.1
Japan				40.1	98.0	87.1
Soviet Union & E. Europe				49.0	65.3	113.0
Thailand				13.6	27.2	27.2
Others				39.5	119.7	104.8
Soybeans	851.6	1,151.0	1,370.0	1,090	1,250	1,100
Hong Kong	13.0	37.9	50.0	12	10	10
Indonesia	84.9	201.3	250.0	172	294	250
Japan	307.9	345.5	350.0	289	280	250
Malaysia	37.0	79.6	100.0	100	50	50
Singapore	8.3	4.4	10.0	9	5	10
Soviet Union	400.0	388.4	400.0	450	400	400
Others	1.0	93.6	210.0	16	0	130
Soymeal	580.0	719.6	1,077.6	719	1,050	1,150
Hong Kong 5/	126.8	81.1	50.0	75	75	50
Indonesia	55.2	135.7	37.9	186	79	80
Japan	11.3	41.0	80.0	21	92	100
Malaysia	107.0	119.0	133.0	100	137	150
Philippines	0	0	133.6	57	134	150
Singapore	92.1	95.9	113.6	85	119	120
South Korea	35.0	113.9	72.2	73	83	100
Thailand	87.7	105.1	162.3	75	162	150
Western Europe	65.0	58.7	297.7	47	169	250
Oilseeds 2/	336.4	409.6	509.8			
Oils 2/	130.8	161.6	165.7			
Sugar 4/	52.2	184.0	266.5			

NA = Not available.

-- = Negligible.

1/ USDA forecasts as of May 1987. Marketing years = cotton, August/July; soybeans, September/August; and soybean oil and meal, October/September. 2/ Excludes soybeans and soybean oil. 3/ Includes soymeal. 4/ Raw-value basis. 5/ Includes all oilmeals exported to Hong Kong.

Sources: Official partner-country trade statistics; International Sugar Organization, Statistical Bulletin, 1986, Vol. 45, No. 3; and various issues of China's Customs Statistics.

Table 23--U.S. agricultural exports to China 1/

Item	Fiscal years			Calendar years		
	1984	1985	1986	1984	1985	1986
1,000 tons						
Wheat	4,579	1,373	144	4,067	816	0
Corn	0	0	0	0	0	56
Tobacco	0	242	125	--	99	125
Cattle hides, whole 2/	247	927	428	500	743	278
Soybeans	0	0	187	0	63	124
Cotton	3	1	0	2	1	--
Soybean oil	--	0	0	10	20	0
1,000 dollars						
Wheat	673,906	183,127	18,777	576,319	104,861	0
Corn	0	0	0	0	0	4,241
Tobacco	0	1,598	737	889	709	737
Cattle hides, whole	10,275	37,500	16,867	20,868	29,307	11,123
Soybeans	0	0	37,971	0	12,564	25,407
Cotton	4,743	1,661	0	3,582	1,582	283
Soybean oil	22	7,471	0	7,448	46	0
Others	3,307	7,572	13,239	4,091	8,033	15,663
Total agricultural	692,253	238,785	87,212	613,197	157,102	57,454
Total nonagricultural	2,053,508	3,401,735	3,467,267	2,391,103	3,650,904	3,019,361
Total exports	2,745,761	3,640,520	3,554,479	3,004,300	3,808,006	3,076,815

-- = Negligible.

1/ U.S. domestic exports, f.a.s.-value basis. Exports include transshipments of agricultural products through Canada. 2/ Numbers in thousands.

Sources: U.S. Bureau of the Census, "U.S. Agricultural Exports," country by commodity, monthly printouts; U.S. Department of Agriculture, Economic Research Service, U.S. Foreign Agricultural Trade Statistical Report, various issues.

Table 24--Major U.S. agricultural imports from China, by calendar year 1/

Commodity	1982	1983	1984	1985	1986
1,000 dollars					
Meats and products, excluding poultry	1,006	1,040	1,027	687	24
Other meats, fresh or frozen	1,005	971	1,020	650	23
Poultry and products	11,506	8,368	12,358	15,746	23,265
Eggs	447	591	1,003	813	1,143
Feathers and down, crude	11,060	7,776	11,355	14,933	22,122
Hides and skins	836	1,119	927	1,080	909
Furskins	481	892	875	690	228
Wool, unmanufactured, apparel grades	4,400	4,182	4,020	3,786	2,101
Sausage casings	1,548	2,438	2,076	1,191	1,971
Silk, raw	5,705	5,140	4,518	3,433	3,060
All other animal products	12,213	14,655	16,418	16,292	19,528
Grains and feeds	3,360	3,889	4,461	4,743	4,037
Fruits and preparations	5,860	6,519	5,466	4,069	4,358
Fruits, prepared or preserved	5,846	6,517	5,461	4,060	4,355
Nuts and preparations	2,133	5,846	8,207	7,783	7,169
Vegetables and preparations	46,220	18,796	57,824	56,524	53,081
Vegetables, prepared or preserved	45,846	18,385	57,197	56,152	52,125
Mushrooms, canned	27,997	4,559	37,947	37,553	31,037
Waterchestnuts	9,239	6,303	10,795	12,197	13,369
Sugar and related products	7,461	8,078	5,278	7,070	11,622
Spices	5,557	6,103	7,906	8,905	7,843
Beverages	30,154	22,483	30,912	42,014	39,704
Coffee and products	4,002	1,444	0	433	452
Cocoa and products	13,958	7,935	8,701	15,243	10,294
Tea	9,995	9,938	18,279	18,269	16,469
Malt beverages	1,629	2,413	2,876	3,508	5,814
Oilseeds and products	2,280	7,902	4,661	2,657	3,687
Oilseeds and oilnuts	1,629	6,361	1,912	1,344	1,193
Oils and waxes, vegetable	651	1,541	2,749	1,311	2,494
Seeds, field and garden	1,367	778	1,288	1,307	1,579
Essential oils	11,974	13,944	12,943	13,309	13,376
Drugs, crude natural	12,810	8,282	6,282	6,377	4,637
All other vegetable products	3,703	3,422	4,403	3,467	3,874
Total agricultural commodities	170,093	142,985	190,960	197,192	200,069
Total nonagricultural commodities	2,045,763	2,101,115	2,873,846	3,666,208	4,498,231
Total imports	2,215,856	2,244,100	3,064,806	3,863,400	4,698,300

1/ Imports for consumption, customs-value basis.

Sources: U.S. Department of Commerce, Bureau of the Census, "U.S. Agricultural Imports," country by commodity, annual printouts; U.S. Department of Agriculture, Economic Research Service, U.S. Foreign Agricultural Trade Statistical Report, various issues.

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CONVERSION EQUIVALENTS

Chinese	Metric		English
1 mu	0.0667 hectare		0.1647 acre
15 mu	1.0 hectare		2.4711 acre
1 jin (catty)	0.5 kilogram =	.0005 ton	1.1023 pounds
1 dan (100 jin)	50.0 kilograms =	.05 ton	110.23 pounds
1 dun (ton)	1,000.0 kilograms =	1.00 ton	2,204.6 pounds
1 jin/mu	7.5 kilograms/hectare	6.93 pounds/acre	

Crops	Pounds/bushel	1.0 bushel	1.0 ton
Wheat, potatoes, soybeans	60	0.02722 ton	36.743 bushels
Rye, corn, and sorghum	56	0.02540 ton	39.368 bushels
Barley	48	0.02177 ton	45.929 bushels
Oats	32	0.01452 ton	68.894 bushels
Cotton (480-lb bale)	NA	NA	4.593 bales
Cotton (500-lb running bale)	NA	NA	4.409 bales

Exchange rate

In 1986 1 dollar averaged 3.4528 yuan.

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ABBREVIATIONS FOR MAJOR SOURCES

Ag Econ Handbook	Agricultural Technical Economic Handbook Editing Committee, Nongye Jishu Jingji Shouce (Agricultural Technical Economic Handbook), Beijing, Nongye Chubanshe, May 1983.
China Ag Yearbook	He Kang, Editor and Chairman of Agricultural Yearbook Committee, Various issues published in 1980, 1981, 1982, 1983, 1984, 1985, and 1986. Zhongguo Nongye Nianjian (China Agricultural Yearbook), Beijing, Nongye Chubanshe.
China Econ Yearbook	Jiang Yiwei, Editor, Various issues published in 1981, 1982, 1983, 1984, 1985, and 1986. Zhongguo Jingji Nianjian (China Economic Yearbook), Beijing, Jingji Guanli.
China Stat Yearbook	State Statistical Bureau, Editor, Various issues published in 1981, 1983, 1984, 1985, and 1986. Zhongguo Tongji Nianjian, (China Statistical Yearbook), Beijing, Zhongguo Tongji Chubanshe.
FB or FBIS	Foreign Broadcast Information Service, Daily Report: China, National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia.
JjRb	Jingji Ribao (Economic Daily), Beijing, China.
JP or JPRS	U.S. Joint Publications Research Service, China Report, National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia. This report is published in three separate sections. JPE, refers to the China Report--Economic Affairs; JPP, refers to China Report--Political, Sociological, and Military Affairs; JPA, refers to the China Report--Agriculture; and JP-CRF, refers to the China Report--Red Flag.
RmRb	Renmin Ribao (People's Daily), Beijing, China.
SSB Communique	Communiques of the State Statistical Bureau of the People's Republic of China on fulfillment of China's National Economic Plans, Beijing, China's Financial-Economic Press, 1980, 1981, 1982, 1983, 1984, 1985, and 1986. These communiques are also published in RmRb and FBIS.